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EDITOR:

PROF. SIR FREDERICK HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E.

DR. MED. VET, *h.c.* (ZURICH),
HONORARY VETERINARY SURGEON TO HIS MAJESTY THE KING,
OFFICIER DU MÉRITE AGRICOLE (FRANCE),
CAVALIERE DEI SS. MAURIZIO E LAZZARO (ITALY),
HONORARY MEMBER OF THE AMERICAN VETERINARY ASSOCIATION,
PRINCIPAL AND DEAN OF THE ROYAL VETERINARY COLLEGE, LONDON

SUB-EDITOR:

GLADSTONE MAYALL, M.R.C.V.S.

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JULY, 1934.

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The Jersey, by Edith Bradley.
The Hereford, by E. Craig Tanner.
(Illustrated)

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CATTLE AND THE HEALTH OF THE NATION.

WITH approximately five and a-half million cattle in Great Britain it is not to be unexpected that there will be work for the veterinarian; and work there certainly is—waiting to be done. Tuberculosis is rife, Jöhne's disease and Contagious Abortion race as to which shall be second, whilst Contagious Mastitis rides well towards the van.

The horse may to some extent have disappeared as the chief patient of the practitioner, but cattle and dogs still remain—and not only remain, but increase in numbers and importance daily. The public demand for more attention to their respective ailments has opened up new fields for work, and this means more veterinary surgeons. The study of animal diseases requires scientifically trained minds, and to successfully combat animal epidemics men must not only devote their whole energies, but have aptitude for the job, and a knowledge of the foundation which long generations of experience has already laid down. Our forefathers had not our advantages, and perhaps worked somewhat by "rule of thumb"; but "there were giants among them," and the leaders of past ages "blazed the trail" which we of to-day still follow, with our added equipment of modern science.

The present issue of THE VETERINARY JOURNAL is devoted entirely to cattle subjects, and will bring home to our readers that in the training which the veterinary student has to take to-day the subject of Animal Husbandry is an essential foundation to the further knowledge to be acquired at a later date in his college curriculum, when he enters the final year and concentrates on the more abstruse problems of disease.

THE CONGRESS MONTH—N.V.M.A. AND THE INTERNATIONAL.

AUGUST, 1934, will be to veterinarians of all countries a time for work as well as a month for play; and all who have tasted of the pleasure of congress gatherings will have feelings of sympathy and regret for those to whom illness or urgent family affairs have proved an insurmountable barrier to their attendance. Congresses are good for many things. Good for progress—educational and social—and in a thousand other ways. They promote a professional friendship and good fellowship, the extent of which cannot be attained elsewhere; and THE VETERINARY JOURNAL, in wishing success to the International and the National, voices the thanks of the profession to those officials without whose unselfish and strenuous work such gatherings would be impossible.

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General Articles

WHAT IS THE BEST TYPE OF A BUTCHER'S BULLOCK ?

By Lt.-Col. DUNLOP YOUNG, O.B.E., M.R.C.V.S., D.V.S.M.
Veterinary Adviser to the National Federation of Meat Traders.

AT the present time the competition which the British farmer has to meet in the supply of beef to our markets is greater than it has ever been, due to the majority of imported beef arriving in the chilled condition. Unlike frozen beef, chilled beef can on its arrival be sold direct to the public, no thawing is required, and having matured for at least three weeks, it is tender and easily digested. As evidence of this, an article which appeared in *The Times* of June 12th is quoted, cooking and digestion tests were made with the following results, *viz.* :

	Argentine Chilled Beef. Per cent.	English Beef. Per cent.
Average loss of weight...	25.7	24.5
Average net loss of weight (taking account of dripping and gravy)	15.1	14.6
Mineral matter in wet lean after cooking	1.12	1.07
Undigestible matter (calculated on dried lean)	19.3	19.6

The price of the imported being much cheaper than the home-produced article, the only inducement for the consumer to buy the latter must be that it is superior. Judged by the analysis, there appears to be practically no difference between the two classes of meat, but there is a distinct difference, as anyone can prove for himself or herself by testing the flavour of a piece of cold "Best Scotch" against that of "Best Chilled." What that flavour is due to has not as yet been ascertained; nevertheless, it does exist, and perhaps the best proof is that salesmen in Smithfield Market, who are unquestionably good judges, always take home for their Sunday's joint a piece of best Scotch. If they cannot obtain this they take a piece of best chilled, never second grade home-killed. What does this teach us ? Simply that if breeders and feeders in Britain desire to find a ready sale for their beef produce, they must concentrate on the best type of a butcher's bullock, also the quickest and most effective method of getting the animal ready for the butcher.

To do this it is necessary, whatever be the breed selected, to feed for the butcher from the day the calf is born until the animal is sold. There should never be a check. It is a true saying in feeding : "The greater the check the smaller the cheque." The good feeder knows best by results what food to use, but some

breeders are rather inclined to be prejudiced as to breeds; having been from boyhood in the habit of feeding a certain breed with fairly good results, there is naturally a hesitation to try other breeds. This is where the South American breeders and feeders differ from Britishers—they are not so conservative. Show them that the large type of animal is not now in demand, and they at once try a smaller type, and are doing so.

Compare the quarters of beef imported to-day, for size and weight, with those imported pre-War for confirmation of this statement.

When in Argentina last I saw very large cattle amongst the smaller type, and asked why they had not been sold. The answer was: "Because we cannot sell them, they are too big and heavy." Such animals are now being bought at a low price, the useful parts cut out of them and exported, the less useful parts being utilised for other purposes; and now comes the question: What does the butcher consider the best type of a beef carcase?

The dead weight should be about 640 lb.; the bones should be small, the meat plentiful, and preferably in the hindquarters, where we get our roasts and steaks; the neck, breast and flank, which are difficult to sell even at low prices, should not be fat. The fat should be well distributed throughout the carcase (marbled beef), not deposited in patches, such as in the flank and briskets, over the shoulders and pin bones, or on each side of the tail and in the scrotum; there should be lean meat down to the hock, leg, and neck short.

What types breed this class of carcase?

In South America, formerly the Shorthorn was an easy first, the Hereford next, and then the Aberdeen Angus. In North America and in many parts of Australia, the Hereford was placed first, and so long as heavy beef was easily sold, this classification remained; but then came the demand for small joints and less fat, and so a change took place.

Invariably the bones of the Durham or Shorthorn are heavy; an attempt has been made to produce a smaller and more ideal beef type by producing the Scotch Shorthorn, and with fairly good results. The Hereford has also heavy bones and when well fed is inclined to put on fat in the parts already indicated as objectionable. Good crosses have been produced by mating the Hereford with the Aberdeen Angus. Another useful cross is the Hereford and Red Poll, producing the Polled Hereford for smaller bones and a very useful carcase. A good cross is with the small Devon, which gives excellent results. For a carcase full of lean meat the Galloway is difficult to surpass, but some butchers consider that the fibre is inclined to be coarse. From a long experience of examining beef carcases of all types, at home and abroad, I have formed the opinion that for the production of the right type of a best butcher's bullock, there is nothing to excel the Aberdeen Angus, or a cross with this breed. This has been distinctly proved at the Smithfield Club Shows. Other judges may differ from me, and they are certainly entitled to form their own judgment, but my opinion is strongly sup-

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ported by such wonderful judges as Mr. W. Reid, Mr. Cridlan, and many of the highest class butchers both at home and abroad.

As evidence of the value of the Aberdeen Angus breed for crossing purposes, Gustavo Rey-Alvarez, in an article on the Uruguayan meat trades, has stated: "In the Cabana Santa Maria, special attention is given to the breeding of Scotch Polled Angus cattle. This is one of the best breeds for slaughterhouse purposes, owing to its prevailing tendency to fatten. It is docile and is both easy and economical to keep. On the ranch, at two years of age, bullocks reach 654 kilos, producing a meat yield of 71 per cent."

THE SUSSEX: A BREED FOR EARLY MATURITY.

By A. G. HOLLAND

Secretary, Sussex Herd Book Society.

AMONG the famous breeds of England there is probably not one which is better known than the Sussex. Not only have they made their name as a beef breed when kept pure, but for crossing with other breeds, when beef and early maturity are the objects aimed at, they are without rivals.

Arthur Young, in his "Annals of Agriculture," of 1795, spoke of Sussex cattle as a well-established breed of high repute. He quotes as follows: "These cattle are universally equal to any in the kingdom. The true cow has a deep red colour, fine hair and mellow skin, small head, fine horn, clean and transparent, running out horizontally and afterwards turning up at the tips, neck very thin and clean made, small leg, straight top and bottom with round and springing ribs, a thick chine, loin, hips and rump wide. The cow usually gives up to two gallons of milk at a meal, and from three to four pounds of butter per week in the summer."

Sussex cattle were originally bred as much for draught purposes as for beef, and the results of hard work in the plough, wagon and timber tugs has left them with a constitution which has stood them in such great stead in all foreign climes, being able to resist the extremes of heat and cold.

Having been for generations bred on the Wealden clays and marshlands of Sussex and Kent, oftentimes with no better grazing than the poor pastures of downland farms, the breed is naturally accustomed to roughing it and thriving in the process. Under these conditions they thrive where other breeds would speedily succumb. The common custom in their native homes is for the cattle to remain out in the open throughout the winter, and this often obtains even in some of the noted prize-winning herds. Cattle which are thus constantly exposed to the weather naturally become impressed with that stamp of health and imbued with hardy constitutions. Their robust habit and propensity for putting on flesh on natural pasture is their great recommendation.

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The Sussex cow is not a dairy animal, yet it is a fact that if she is milked and given a fair trial at the pail, she will give a good account of herself, when it is remembered that her chief merit is as a beef animal. There are plenty of cows which a few weeks after calving will give from thirteen to fourteen quarts daily, and the milk is exceedingly rich in butter-fat. The milk contains nourishing qualities, as a Sussex calf at six months old appears to be much older and more developed than one would expect. A well-known breeder of Sussex cattle in South Africa considers his cows to be good milkers, although they run the greater part of the year upon the scanty herbage of the high veldt.

It is when we describe Sussex cattle as beef animals that we find them at their best. The prospective buyer who desires statistical proof of their excellence in this respect will find convincing material in the records of the Smithfield Club. In these days it is early maturing beef that is wanted, and Sussex cattle can produce it. In weight for age there are few breeds who can equal the Sussex, and none can excel it.

Farmers who have taken up Sussex cattle are unanimous in their strict preference for pure-bred stock. Both males and females kept are from registered parents, the reason being that they not only keep themselves as cheaply as cross-bred animals, but yield a great quantity of beef. Steers bred from pedigree stock can be cleared off at a substantial profit before the end of two years. One breeder declares that since he adopted Sussex for beef production he has increased the produce of his farm well-nigh fourfold. He has trebled the number of head he can now place per acre: firstly by improving his grass, and secondly by raising the quality of the cattle themselves. The relatively low initial cost of pure-bred Sussex cattle make them ideal improvers of farms on poor land. They have achieved the highest honours on the scale and the block in competition with breeds whose claim in the matter of beef production have been more loudly proclaimed. The success of the breeders who have been responsible for its development needs no further testimony.

Sussex bulls have been tried with the utmost success in all parts of the world for crossing purposes, for the bull transmits to his progeny that substance and firmness of flesh which are characteristic of the Sussex, as well as the rich red colour which is so great an advantage to cattle in hot climates. The Sussex of to-day is, indeed, a remarkable product of intelligent selection by men with discernment enough to see that the frame of an animal used then largely for draught purposes could be made to carry a profitable carcase of meat, and these men luckily possessed the energy and confidence to put their beliefs to the test.

In estimating the value of Sussex cattle as beef cattle, one must not lose sight of the fact that this is the day of early maturity and baby beef. When the economical feeding qualities of this breed and the splendid quality of the beef produced is considered, it will be evident that as a grazier's beast the Sussex is the most remunerative investment of its kind, especially for the tenant farmer who is on the look-out for a rent-paying animal which does not call for an expensive upkeep.

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THE DAIRY SHORTHORN.

By ROBERT HOBBS.

As is well known, cows of Shorthorn type comprise more than two-thirds of our dairy herds, and the breed is popular from one end of the country to the other. The ideal dairy Shorthorn is not an extreme milker, but one that will average her 8,000 to 10,000 lb. of milk annually at maturity, and test well for quality. She is of robust type with a good coat of hair, an animal that is fitted to live long and breed regularly, producing healthy calves that will, if heifers, inherit the good qualities of their dams, and if bulls, be of the type that will pay well to rear for beef should they not be required for the breeding herd. Such cattle are the mainstay of commercial herds throughout the country, and this fact constitutes proof positive of a high degree of merit and exceptional adaptability.

The reports of Milk Recording Societies everywhere reflect the predominance of the Shorthorn; but whereas one may not always find a Shorthorn at the head of the list of heavy producers, the breed will be found in most cases to supply more than twice as many 9,000 lb. cows than all other breeds combined. The reason for the widespread preference of the breed lies undoubtedly in its dual-purpose characteristics, as, despite all that is said to the contrary, it is the dual cow that is the safer and most economic proposition from all points of view. Rich milk, clean milk, and milk free from tubercle is the modern requirement, and the robust milker of Shorthorn type is the cow best fitted to provide it. We have ample evidence from the official tests of Recording Societies, the results of the London Dairy Show and the Royal Show that Shorthorn milk is rich milk. The average Shorthorn has a well-attached vessel of wearing type, easy for milking and to keep clean, and with her strong constitution she is essentially an open-air cow that will breed healthy calves and be less susceptible to tuberculosis and the many other ailments to which extreme milkers are prone.

Another factor of importance in modern milk production is colour now that milk is universally retained in bottles. Here again the average Shorthorn meets the need with a product that is the required shade off from white to yellow; moreover, easy digestibility also is ensured by the medium-size fat globules, a characteristic of importance in the feeding of infants and invalids.

A further most important point worthy of consideration by those contemplating the foundation of herds is the widespread distribution of the breed. This makes certain that no matter where one is farming there will exist a ready local demand for one's surplus. For the commercial farmer there is no breed that will more readily meet his requirements; while for the pedigree breeder there is no better proposition, as not only is there a regular call for first-class dairy Shorthorns everywhere in the country, but there is a growing demand from overseas. At the Dairy Shorthorn Association's last Show and Sale, held at Bingley Hall, Birmingham, buyers from overseas were purchasers up to 170 guineas for fifteen months old bulls, and 100 head were sold for an average of over £50. Bulls

were taken for all parts of England and Wales, and very many were selected for service under the Ministry of Agriculture's Live-Stock Improvement Scheme, under which scheme no less than 757 Shorthorn bulls were located last year, a total larger than for all other breeds combined.

The rise of the dairy Shorthorn to pre-eminence is one of the most remarkable features of agricultural history during the past three decades, and, meeting, as she does most fitly, the requirements of the present and as far as can be foreseen those of the future, there is every indication that she will remain England's most popular cow.

THE COMMERCIAL DAIRY SHORTHORN.

By JOHN GATES

Late President of the National Farmers' Union.

In these days of keenness of competition, both at home and from abroad, when it is essential that a keen eye shall be kept on all operations that are helpful towards keeping the home fires burning and the bank balance in proper trim, it is necessary that, in order to ensure this, the most economical means must be found to produce an article that is first of all acceptable to the public; and, secondly, at such a price that it can hold its own on the English market, *i.e.*, if given a chance by such restriction of imported produce as will allow it a stabilised market.

One of the chief methods of attaining that end for some years past has been that of milk production, and to such an extent has this increased that there is a tendency to value the cows of this country on their milk production alone. Too much stress can easily be laid upon this, for in striving after such exceedingly high milk records there is very great danger of putting too great a strain on the constitution of the animal in question, and in the end only bringing disappointment. Instead of owning a herd of hardy commercial well-bred cattle that one is proud of owning and showing to one's friends and neighbours, there only remain a milking machine of doubtful stamina, and in all probability a herd of uncertain producers as far as breeding is concerned.

Surely, with the eyes of the country at the present time on the larger question of live stock generally, and fat stock particularly, now is the time to take stock of the herds in the country, and rather than put all our eggs in one basket, *viz.*, that of milk production, let us set out to breed a herd of cows that will be of service in beef production as well as milk.

A fair average production of milk of, say, 700 to 800 gallons per annum, is not an uneconomic average for any breed of cow, but if to that can be added an adaptability for beef production by means of a natural tendency towards feeding, what an asset it must be to the owner of such a herd—not so heavy a loss if for some reason a draft is necessary from the dairy herd, and a great possibility

of feeding steers from the calves that are produced on such lines. If beef production in this country is to be encouraged, what better cattle can one graze than a good class Shorthorn steer, or, if preferred, a cross-bred Angus Shorthorn or Hereford Shorthorn, to say nothing of a Sussex Shorthorn—one of the best of crosses for grass feeding.

All these are good quick-grazing cattle, and are likely to produce the nice medium-weighted cattle so much in demand. Taking it for granted that the beef producer will soon come into his own, is it not time to set our house in order, and as a first step make up our minds to produce a cow that is of the nature to fill the aforesaid bill as a commercial proposition ?

As a commercial animal and approaching what may be termed the ideal dual-purpose cow, the ordinary type of Shorthorn cow found in many districts in the Midlands is in all probability the most economical milk producer that can be found in this country.

Her splendid constitution and hardy nature, backed by her ready response to ordinary careful feeding and attention, has made her for generations past the most popular breed in many Midland counties. In many cases herds of this breed are of the non-pedigree variety, but still are of such a standard of quality through careful choice of bulls, either from a milking strain, or possibly from some other characteristic which has attracted the watchful eye of the owner requiring to replenish his herd.

The Midland counties were full of such cattle years ago. Some still remain, and by making full use of these as foundation cows and a judicious selection of bulls, there is every reason to believe, that this valuable type of Shorthorn cattle could soon become general again.

A great effort is being made in Bucks, where the Bucks Agricultural Committee, the Bletchley Live-Stock Improvement Society, the County Milk Recording Society, the Young Farmers' Clubs, and the Ministry's Live-Stock Officer are all co-operating in retaining this deep and capacious bodied and good milking type of Shorthorn cow, which is fairly common in the county, more generally in North Bucks, and, by the use of carefully selected premium bulls, as well as privately used ones, multiplying this type in the county.

Further, as a means of giving the grazier confidence in buying well-bred steer calves of this type, which he is anxious to secure, a county ear-mark of the " Bucks heart " has been adopted in connection with the Live-Stock Improvement Scheme.

There is one important point to keep in mind in rearing heifer calves of this type, and that is not to be too liberal in the feeding till they have had time to settle down to milking, otherwise they may tend to lay on flesh. After this stage has been reached they can be given more liberal treatment without prejudicing the milk flow, and it is amazing what good use this type of cow can make of bulky foods, thus economising on the amount of concentrated food required.

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Should this effort be successful, I foresee a great future for the Shorthorn; our forbears bred them extensively, and the longer one lives the more one realises that those who preceded us would have little to learn from the present generation as to the suitability of certain districts for certain breeds of cattle.

THE SHORTHORN (SCOTTISH TYPE).

By JOHN CROMBIE

Warminster.

THERE is no doubt that Shorthorns are the greatest dual-purpose cattle in the world. Of recent years the word "beef" has been applied to the Scotch type; in my opinion there is no such breed as a "beef" Shorthorn breed. Scotch or Cruickshank Shorthorns are, as they have always been, a general or dual-purpose cattle, and there is no getting away from the fact.

In character, shape and quality, the Scotch Shorthorn has greatly improved during the past twenty years. It is unassailable at home and occupies the premier position in practically every country in the world where cattle raising is recognised as a national asset. Breeders of the Scotch type deserve the highest credit for fixing and improving the type of animal, and in this connection the names of the late Amos Cruickshank, of Sittyton, and the late William Duthie, of Collynie, cannot be forgotten. The inestimable services of these two gentlemen can only be realised when we ask ourselves, where would the great cattle industry of Great Britain have been to-day but for these two great pioneers of the Shorthorn breed?

The Shorthorn is by nature a dual-purpose animal. It was these dual-purpose qualities of the breed which gave it a world-wide reputation. Every good Shorthorn should not only furnish a good carcase of beef, but should milk well, and it is these two qualities more than any others that have given it the great name that it holds in all the principal cattle-breeding countries in the world.

Early maturing properties, less waste, finer bone, and better quality flesh are the results of the improvement in the breed during the last two decades. For early maturity it cannot be excelled; for instance, the excellence of the Shorthorn when mated with whatever breed is exemplified at one fat-stock show after another, not only in the general quality, but more so in the weight for age.

The general improvement in the Shorthorn is a striking tribute to both the breeders and the breed, when consideration is given to the large number of outstanding sires that have left the country for overseas, and particularly for South America. Home breeders must realise that the demand all over the world for early maturity beeves is becoming stronger, and this idea must not be lost sight of.

Putting it briefly, the Scotch or Cruickshank Shorthorn makes up the greatest dual-purpose breed of cattle in the world. I have no hesitation in saying that there are still great prospects for the future of the breed, provided we breeders keep in line with the modern changes and ideas.

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THE DEXTER.

By E. P. F. SUTTON, M.B.E.
Member of Council of the British Dairy Farmers' Association.

THE actual origin of the Dexter breed is somewhat obscure, but they are known to have existed as early as 1776. They were first imported into England from the south and south-western district of Ireland, where they had been bred by the smallholders for ages, and had roamed about the shelterless mountainous districts in an almost wild state.

As this was originally a mountain breed, one would naturally expect it to be a very hardy race, and such is the case, and cows and heifers can be kept out of doors all the year round and under all weather conditions, while they are able to thrive on a surprisingly small amount of food. Their export to such countries as the Argentine, the United States of America, Australia, Canada, India, and South Africa, in which countries they have stood the climate well and given every satisfaction, is a proof of their adaptability under very varying conditions.

There is much truth in the saying that Dexters will live and thrive where other cattle would starve, and that two Dexters can be kept on the same amount of land and on less winter food than one cow of the larger breeds. Early maturity is one of the characteristics of this breed, and at two years old a Dexter will produce her first calf, and there are many cases of Dexters producing a calf regularly for fourteen years. The average milk yield for a heifer with her first calf is from 3,500 to 4,000 lb., while a number of cows have given more than 1,000 gallons, and many will give from 700 to 800 gallons. On an average, cows yield three gallons daily, often exceeding 4 per cent. butter-fat. The cream has milk-rising powers above the average, and in connection with the experiments carried out by the London Dairy Shows it was third on the list for highest fat percentages.

That the Dexter is the most economical milk producer of all breeds in England was demonstrated by the tests carried out by the National Institute for Research in Dairying at Reading, which showed that it headed the list as giving the greatest amount of milk in proportion to its live weight. Another advantage which should appeal to the dairyman is that tuberculosis is almost unknown amongst the breed.

The Dexter is a very sound business proposition, as in addition to its hardiness, early maturity, high milk yield and the low cost of its maintenance in the way of food, etc., it produces small beef of excellent quality which commands a very ready sale and is in great demand.

THE KERRY.

By Miss P. de B. BOWEN-COLTHURST.
First Class Honours, Science, Oxford.
Sometime Lecturer, University of Cork; afterwards at Bedford College, London.

THE Kerry breed of cattle is one of the original breeds of the British Isles. It is native of the mountainous districts of Kerry and Cork. The Irish Free State, in order to keep the breed pure, have sheduled an area in these two counties where no cattle of other breeds are admitted.

Form and Appearance.—For beauty and balance of form and walk, the Kerry is hard to beat: of jet-black colour, with upstanding white horns tipped with black, her bearing is dignified and elegant; she strikes one as being alert, healthy, strong and docile.

Weight.—The Kerry cow weighs 800 to 900 lb. The bull being up to 1,200 lb. It would be impossible in so short an article as this to do full justice to the breed, especially a breed so little known. It will therefore be perhaps more interesting to give some of the chief advantages of the Kerry as a breed.

Longevity and Hardiness.—The longevity and hardiness of the Kerry is well known. It is common to have cows from fifteen to twenty years of age in the herd, having had a calf every year from her third year. These older cows still give 700–800 gallons, with a butter-fat not less than 4 per cent. There is no dread of tuberculosis, as it is very exceptional that the Kerry contracts that disease; a well-known Kerry breeder with a T.T. herd has had as many as twenty-three consecutive tests of his herd without having a single reactor.

Quality of Milk.—The quality of Kerry milk is outstandingly one of the greatest assets of the breed; it is of exceptional value to the retailer of milk, cream, butter or cheese. It is a healthy milk and has in itself intrinsic long-keeping qualities. It is a very rich milk. The herd average for a year of a herd of sixty-seven cows was 4.4 per cent. of butter-fat and 9.2 of solids other than butter-fat (these figures are officially taken by the Milk Recording Society). But what counts more is the quality of the cream and solids. The cream is made up of small resilient globules which do not readily burst and which separate easily from the milk. The solids other than cream flocculate very gently, which is a tremendous asset to any milk. Kerry milk will produce 1 lb. 4–5 oz. of cheese per gallon.

Quantity of Milk.—There is a popular idea that Kerry cows give "only a drop of milk"; this is not the case; there are numerous cows that have given over 1,200 gallons and up to 1,400 gallons, and heifers from 800 gallons to 1,000 gallons. The average for a commercial Kerry is 600 gallons.

Low Production Cost.—The cost of production per gallon is relatively much lower than the larger breeds. It is easy to work this out. Three Kerries weighing 800 lb. each, giving 600 gallons per year, equal two larger cows weighing 1,200 lb. giving 800 gallons each per year. Each cow gives the first gallon on maintenance ration.

Quality of Meat.—The quality of Kerry meat compares favourably with other meat on the market, and there is a very ready sale for fat calves of ten weeks old. In looking for big things in Kerries, it is only fair to remember it is the "poor man's cow"—that the poor man keeps the Kerry so that the Kerry may keep him, and he cannot afford to make records. There are Kerry herds in England fed entirely on grass and water in summer, and hay and water in winter, giving a good average yield of high-quality milk, and living entirely out of doors, with practically no disease, and only the wastage of senile decay, with an occasional casualty owing to some accident.

GALLOWAY CATTLE.

By JAMES M. R. BIGGAR
Dalbeattie.

TRADITION and market report have accorded to the Galloway breed of cattle a foremost place among beef breeds for its type of carcase—a high proportion of saleable meat of attractive quality and freedom from waste. Two hundred and fifty years ago they came in droves from their native Galloway to the fairs of South-East England to be fattened for Smithfield. They were the *original* " Prime Scots " of Smithfield market. At the sale of live exhibits at the *last* Smithfield show pure Galloways made the highest average per head and per cwt.

That tradition and market report were well founded has been proved by the official decisions in the carcase competitions at Smithfield shows. The judges, changed every year, were experts from the London meat trade. In the thirteen years since 1921, *pure* Galloways won the championship nine times, and more first prizes in the classes than all other pure breeds together and than all sorts of crosses together. Five of these champions were under twenty-four months old ; the live weights ranged from $8\frac{1}{4}$ to $13\frac{1}{4}$ cwt.

A feature of Galloway carcases is the superior muscle development all through the body. Actual measurement of the eye of the roast of various breeds bears this out, and the amount of attractive saleable meat in the cheaper parts is obvious.

The Galloway is one of the oldest pure breeds in Britain. Its origin is naturally a matter of speculation, but it is probable that it originated a thousand years ago, when the Norsemen came to settle in Galloway and brought their dun and yellow polled cattle to mingle with the black horned cattle of the native Celts. The polled character dominated over the horned and gave us the polled black ; dun strains persist to remind us of the Norse blend. From these strains, and no other, the breed developed through the centuries. The province of Galloway long maintained a state of independence under its own chiefs, and its history and geographical position indicate that there was little intrusion of other alien cattle blood.

Cattle breeding was the main resource of the district ; the prevailing winds, south and west, moisture-laden, gave a long-growing season for herbage, poor as it was. Rocks and swamps did not stir any early enthusiasm for agriculture ; smuggling was a counter attraction. Galloway men were the first in Scotland to give attention to the improvement of their cattle, and by general consent they relied on their own stock. The very earliest descriptions of cattle show that the type was fixed as we know it to-day : black, polled, low set and wide, active and muscular, hardy and healthy ; tuberculosis is rare indeed. Its distinctive coat protects it against cold and wet, and makes it suitable for stocking high exposed lands where few other breeds can exist. A breed of such merit and distinct character—fixed by centuries of pure breeding from definite stock—is of special value for crossing ; one knows what to expect in the produce.

A Galloway bull gets polled calves out of any horned breed—even Highlanders and American Bison. Heifers are in constant demand for stocking high, poor lands, from Caithness to Dartmoor, where, mated with White Shorthorn bulls, they produce the famous Blue-Greys so popular with graziers and feeders.

Most pure breeding herds are situated on poor land where stock is maintained in the open in breeding and store condition. When moved to better conditions, Galloways respond to good treatment. Smithfield Show Catalogues reveal weights of 11, 12, and even 13 cwt. at under twenty-four months old ; the carcase awards testify to the quality.

NOTE ON THE EFFECT OF DRINKING WATER CONTAMINATED WITH SEWAGE, ON THE MILK.

By HENRY TAYLOR, F.R.C.V.S.
Haywards Heath.

In the present state of our knowledge regarding the influence of sewage water when ingested by cattle, and about which there are divergent and conflicting views held by the two schools of thought in our profession, it may be of interest to record the following cases bearing on its effect on milk.

(1) A farmer milking about twenty cows consulted me regarding complaints about the milk being bad and clotty. A sample of each cow's milk had been collected and put into bottle for my inspection, and though none appeared normal, there were varying degrees of the abnormality. This consisted in the milk being very thick and ropy, of a rather muddy colour, and forming *long strings* when poured out. There was not much odour. The food seemed to be all right, so attention was paid to the water supply. This was from a pond about five yards across which was fed from a ditch that had pools of black, stagnant water here and there. On following up the ditch, it led to some cottages, and the water from the sinks in the kitchens after passing through a filter of a rough-and-ready kind, discharged into it. The waste water was simply washing-up water from the cleansing of dishes and clothes, and probably contained much alkaline.

On the farmer making representations to the owner of the cottages to the authority responsible for the drainage, the conditions were remedied, and the milk became normal.

(2) The farmer in this case received complaints about the milk being ropy; when the fingers were dipped into the milk, it hung down as a long string. The food of the cows seemed all right, and as I had known the farm for years I was at a loss to account for the trouble until I ascertained that the water from the pond had recently become discoloured. On discontinuing the source of supply the trouble with the milk ceased.

On examination when the pond was cleaned out, it was seen that sewage was gaining access to it, and the cause was the breaking of a pipe some little distance

away which allowed the sewage to filter through into it. This sewage came from some dwellings, and included not only waste water from the sinks, but also from baths and lavatories.

At the present time, when our thoughts are concentrated on pasteurisation and on the importance of a pure milk supply, one should not overlook the provision of a pure *water* supply for the animals. The economy of the cow seems to manufacture milk, the macroscopical appearance of which is not different from normal, from water from ponds which one would like to see better kept; but clean water must produce a healthier lacteal fluid.

THE INTRADERMAL TEST.

By HENRY TAYLOR, F.R.C.V.S.
Haywards Heath.

In the many records of reactions, I have not noticed in those of other practitioners any which have come up to a few of mine in the size of the swelling. Here are one or two marked reactions:

Initial measurement	48 hours	72 hours
11 mm.	25 mm.	40 mm.
7 ,, ...	18 ,, ...	52 ,,
8½ ,, ...	20 ,, ...	70 ,,
7 ,, ...	20 ,, ...	35 ,,

As far as one could judge, there was no reason for such large swellings.

INTRAVENOUS TREATMENT OF MILK FEVER WITH CALCIUM GLUCONATE.

By J. F. D. TUTT, F.R.C.V.S.,
Winchester.

In view of the varying amount of success and at times either undesirable after-effects, or further treatment by udder inflation attending the subcutaneous injection of solutions of calcium gluconate in cases of milk fever, it was decided to adopt the intravenous route in all future cases.

The jugular vein is the vessel that is usually selected for intravenous injections, and was the one first employed; but although it is readily raised in the cow if a cord is passed round the base of the neck and pulled tightly, it is not ideal when a large amount of fluid has to be injected. Not only is the needle apt to come out of the vein if the cord is loosened, but where the cow is not down and is staggering round the box, the jugular route is out of the question. The same remarks apply when the animal is down and restless. The mammary vein, on the other hand, is free from any of these disadvantages, and, as is known, requires no raising.

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The solution must be warm when injected, in fact one might almost say nearly hot, and a suitable gravity intravenous outfit used. Mild cases receive 300 c.c. of a 20 per cent. solution; all other cases 600 c.c. of a 20 per cent. solution. In view of the slowness of the blood stream in the mammary vein, this route has not been advised by other workers, but provided at least five minutes are allowed for every 300 c.c. to gravitate into the vein, there is absolutely no risk. Very often during treatment muscular tremors are observed. If these are marked the injection should be stopped and resumed later. No milking should follow until forty-eight hours later.

Solutions containing calcium chloride, either alone, or in combination with magnesium chloride, should under no circumstances be injected into the mammary vein, or fatal results will follow. This is due to extensive blood clotting, no doubt engendered by the slowness of the blood stream in this vein. On the other hand, if injected into the jugular, one gets more spectacular recoveries from milk fever than from any other method of treatment; but should a very small amount of such solutions escape outside the vein, swelling and a great risk of sloughing will occur. The mammary vein and calcium gluconate offer the most uniformly satisfactory results, and in not one instance during the past twelve months has it been necessary to adopt other treatment.

PROPHYLAXIS AGAINST THE SPREAD OF JOHNE'S DISEASE.

By DAVID ERIC WILKINSON, M.R.C.V.S.
Chigwell.

INTO the debatable question of the recovery of clinical cases of Johne's disease, which has recently received considerable attention in the columns of a contemporary journal, it is not the writer's intention to enter; but prophylaxis against the spread of that scourge has engaged his attention for many years. Whilst these remarks are based upon clinical observation only, and are not supported or confirmed by bacteriological investigation, they represent the results of attempts at prophylaxis which seem to lead up to a definite conclusion that by careful attention to hygiene it is in some degree possible to check the spread of infection and to limit the losses even in herds known to be infected by this disease.

Whilst attention has hitherto been principally bestowed upon the prevention of infection from pastures, these results force upon the writer the conclusion that, provided fields are not badly over-stocked, infection from that source is not so greatly to be feared as from dirty, insanitary buildings, badly soiled feeding troughs and mangers, and, *most of all, from drinking water obtained from ponds constantly soiled by the excreta of the infected animals themselves.*

The incidence of the disease is very widespread and is probably greatly on the increase, whilst the resistance of cattle of the deep-milking breeds is being constantly lowered by the dairy farmers' insistence upon heavy milk yields.

Williams, of Cornell University, has drawn attention to the comparative immunity to the infection of *Brucella abortus* possessed by beef cattle separated only by a wire fence from dairy cattle amongst whom losses from this disease were extremely heavy, and it is possible that in some degree the same applies to resistance against the results of infection by Johne's bacillus, as the frequency with which infected cattle break up and die at the time of parturition and the commencement of lactation is generally recognised.

The preparation of a really reliable Johnin test by Major Dunkin has rendered the early detection of the disease before it has become clinically dangerous comparatively easy, and in herds which are not heavily infected its persistent application over the course of two or three years brings eradication within reach. When, however, the disease has gained a firm foothold and the herd is heavily infected, eradication as an economic problem becomes exceedingly difficult, and some method of control, prevention of spread and the building up of a sound herd is called for.

During the past three years a method of prophylaxis embracing (*a*) good hygienic environment and (*b*) increased resistance to the results of infection, has given encouraging and hopeful results.

To quote one instance descriptive of the system: In one Guernsey herd which had sustained severe losses from Johne's disease for several years, Dunkin's Johnin test was applied on December 29th and 31st, 1932, to seven cows and heifers. The test chart was submitted to Major Dunkin, who pronounced that a positive reaction had been given in each case. On this report the owner at first contemplated destroying the herd and letting the land, but was eventually induced to try a scheme to prevent further loss and to build up a sound herd by rearing the calves of the infected animals, which were all high-grade pedigree stock.

As a preliminary, the stock yard, which had a muddy bottom of earth, was well drained and made good with a deep layer of well-rolled ballast; the loose-boxes for young stock, which had only earth bottoms which had been badly soiled for years past by clinical cases of Johne's disease, were floored with concrete and surface drained. All manure was stored away from the sheds and used only on arable land. A field near the sheds was mown bare, lime dressed and left exposed to the prolonged sunshine of last summer—an ideal season for this purpose. This field was kept unoccupied for the reception of a fresh crop of calves. The rest of the grazing land was not dressed or mown, as it was too extensive to be thus treated without a big monetary outlay. Also, its extensive acreage prevented any danger of overstocking. Calf pens were thoroughly disinfected, and the permanently-fixed batten floors were taken out and replaced by smaller sections easily removable for disinfection and cleansing. Provision was made for the immediate weaning of calves at birth to prevent any danger of fæcal infection from their dams. A liberal supply of iodised bone flour meal was given daily in the food of all the herd, especially the milch cows, and last, but most important

of all, the ponds were railed in to prevent soiling by fæces of cattle drinking therefrom.

So far the results have been most gratifying. Four of the seven animals have calved down without developing any clinical symptoms, the milk yield has improved and the calves have been particularly sturdy and well developed. By a fortuitous circumstance they are all heifers, and are, in the owner's opinion, the best crop of calves ever bred in the herd.

In two similar herds the same treatment has given equally good results. The owner of one herd refused to rail off the ponds, but the dry weather came to the writer's assistance, completely drying them up, so that the cattle have had to be watered at tanks fed from the main.

A bacteriological examination of the mud in the bottoms of ponds on infected farms, which are constantly entered by stock which stir up this mud before drinking in it, would be of interest, as it seems highly probable that the disease is maintained in such herds by constant self-infection.

The writer's most grateful thanks are due to Major Dunkin and to Colonel Rees-Mogg, and to Mr. G. N. Gould, of Southampton, for their help and advice in these observations.

THE TREATMENT OF STREPTOCOCCAL MASTITIS.

By FRANK CHAMBERS, F.R.C.V.S.

Wolverhampton.

DURING the past few months, through the generosity of Messrs. Bayer Products, I have been able to test their new chemiotherapeutic antiseptic Entozon Granulate. Entozon is a finely granular yellow substance which is easily soluble in water and contains 35.3 per cent. of Entozon. One gramme of the granulate dissolved in a litre of water forms a 1/1,000 solution (15 grains to 1¾ pints). Ordinary tap-water can be used for the preparation of the solution, but one is recommended to boil it in order to precipitate the lime and other salts which it may contain. I have used this solution in the treatment of streptococcic mastitis with great success. The first case was in a cross-bred Fresian cow that had an enlarged off hind quarter giving altered milk. The cow had been affected for over a month. The quarter was filled with a warm solution of Entozon, and it was left there for one hour and then drawn off by the cowman.

Only one injection was given, the result being most excellent. Normal milk appeared within two days and all the enlargement of the affected quarter disappeared.

Case 2.—Jersey cow; due for her fourth calf within three weeks of putting up a mastitis in the off hind quarter. Streps. and staphs. were present. Biological test for T.B. was negative, and the whey did not agglutinate the *B. abortus*. The quarter was irrigated with Entozon solution and the secretion became normal

within the few days. Since calving there has been no trouble, but the cowman states that she is " light " on that quarter.

Case 3.—Fresian cow ; second calf ; developed a non-painful mastitis in the near fore and hind quarters. The off hind quarter was slightly affected, but after the first few squirts the milk became normal. The two near quarters were irrigated twice with a four days' interval. The off hind quarter was not interfered with. Both the irrigated quarters made a speedy recovery, but the off hind quarter did not improve until that was irrigated. Entozon solution may be used as a uterine douche, but I find that solutions stronger than 1/1,000 are irritant to the cow, but the stronger solution does not appear to discomfort the bitch. In one case of pyometra which did not clear up with three injections of pituitrin, irrigation of the uterus was carried out on two successive days with good results. A smear from the discharge was sent to Dr. Sheather, who reported that streptococci were predominant in the original plate culture. This fact may account for the efficacy of the Entozon lavage. Entozon bougies are also made for use in cattle practice. I have only used them in one case, and that was a two-year-old Jersey heifer which aborted at the eighth month. Blood was positive for the *B. abortus*. I was called to see her at the third day, when I found that the os had closed so much that I was unable to insert the ordinary pessary. Three bougies were inserted, and two more on the third and fourth day. There was no objectionable smell afterwards. The heifer went off her food a little, but after receiving the usual stimulants she soon went on well. On the eighth day after abortion the placenta was drawn away easily and completely. There was not a trace of vaginal discharge from her afterwards, but being an aborter she was put out of the herd.

"BLACK SPOT."

By FRANK CHAMBERS, F.R.C.V.S.

Wolverhampton.

THIS is a name given by farmers and dairymen locally to a condition affecting the end of a cow's teat. The condition is usually seen in a newly-calved cow and only affects one teat. It starts as a localised area of inflammation at the end of the teat around the orifice. The actual area is quite small, but the localised inflammatory reaction effectually closes up the orifice and makes milking very difficult. The " scab " has to be removed at each milking, and as a result of the excessive pressure exerted by the milker the teat becomes sore, the denuded area at the end of the teat becomes infected, and eventually the inflammation extends up the teat canal and mastitis occurs. The mastitis is painful, the quarter indurated and swollen, and the milk secretion is so altered as to resemble thin pus. Invariably the quarter is lost. Local treatment by hot fomentations and the application of antiseptic ointments to the " black spot " before and after milking will cure a percentage of cases, but after much experience with this complaint

I prefer to take drastic measures and treat the case by enlarging the orifice with a McClean's instrument if the condition does not clear up with more gentle measures within four days. The end of the teat to be operated on is held in a solution of methyl violet. The solution I use is made up of methyl violet, 1 part; S.V.M. (surgical spirit), 25 parts; distilled water, 30 parts.

A small quantity is poured into an egg cup and the affected teat held in the solution for a few seconds. With a sterile McClean's instrument the sphincter is incised crucially until the milk can be readily obtained. It must not be made to milk too easily, or otherwise when the inflammation subsides the milk will "run out." But should this happen it will be better than having a prolonged and excessively painful mastitis to deal with, for so many owners have acquired that pernicious "bougie" habit, and fail to realise what a dangerous operation the insertion of a bougie into an affected teat really is.

PNEUMONIA IN THE COW.

By G. MAYALL, M.R.C.V.S.

Bolton.

An experienced and successful practitioner once declared that perhaps 90 per cent. of the pneumonias in the cow were tuberculous. Many practitioners may be inclined to agree with him, but it is certain that not a few cases of plain pneumonia and broncho-pneumonia do occur in bovines, and they are not easy to treat successfully.

The diagnosis of pneumonia requires careful consideration. If we find a cow ill in a herd, and often a newly purchased one, with a temperature round about 104 degrees, elbows turned out, quickened respirations and pulse, with or without discharge from the nostrils, and on auscultation rattling noises and bronchial breathing are found, we consider we have a case of pneumonia to deal with. The absence of friction sounds over the lung area is a guide as to the absence of tuberculosis, and the suddenness of the onset of the malady leads to a suspicion of pneumonia. The appetite as a rule is in abeyance, and there may be constipation followed later on by diarrhœa.

The cause of the pneumonia may be described as due to a chill in conjunction with the operation of various micro-organisms (pneumococci, streptococci, etc.). Given a case of pneumonia we require as pure air as we can get, and the cow preferably put in a clean, airy, loose box. Then nothing appears better than to apply a good mustard plaster to the sides with some turpentine liniment mixed with the mustard (the plaster not to be washed off) and re-applied days later if necessary.

What is the Best Medicinal Treatment?—We should like to see a conference of practitioners to discuss and come to a conclusion on this question. I think, writing generally, the results of treatment in this malady are none too brilliant.

We deal with it by drenches of acetate of ammonia, carbonate of ammonia, glycerine of belladonna, liquid extract of nux vomica, glycerol gentian co., pot. nit., mag. sulph., etc., and sometimes give hypodermic injections of camphor oil (1 in 5). Whatever is given it is important to keep the cow eating and drinking if possible. We like a plenteous supply of linseed tea, oatmeal gruel, steamed hay and scalded bran, also grass if fresh and sweet. Some men say and write " never give drenches when a cow has pneumonia," but after a somewhat varied and wide experience of practices and practitioners we have never yet come across a veterinary surgeon who treated a pneumonic cow with balls as is often done in the case of the horse. On the other hand, we often use electuaries with quinine beneficially and give febrifuges and diuretics in the drinking water. Occasionally medicated inhalations seem to do good. Whisky has its uses at times, and now and then acetanilid carefully prescribed is beneficial. Spartein sulphate and nuclein hypodermically are recommended by some practitioners, but we have never had occasion to use them.

CONTINUED STUDIES ON TREATMENT OF STERILITY IN COWS AND BREEDING SOWS WITH WHEAT-GERM OIL (VITAMIN E).

By F. BAY, D.V.M. (Sakskobing)
and P. VOGT-MØLLER, M.D. (Copenhagen)
Denmark.

AFTER publication of our first results with the wheat-germ oil therapy in sterility in cows,[1] we have steadily continued the experiments with this treatment introduced by us. Here we shall briefly report the results of these continued experiments and mention the conditions under which these results were obtained.

In the winter 1931–32 our experiments were checked to a large extent and rendered very difficult by the foot-and-mouth disease, as many owners failed to have the treated animals examined, and others had to part with the animals on account of various subsequent diseases (mastitis, hoof carbuncle, etc.). The economical conditions prevailing in Denmark were also highly inconvenient to performance of the experiments.

On principle, no experiments with the wheat-germ oil therapy were undertaken during the summer season in order to exclude that a possibly multiplex vitamin deficiency might be covered in some other way (through the more vitamin-rich summer feed) than just through the therapy employed. Thus it was also possible with greater certainty to localise the effectivity of the treatment to the wheat-germ oil *per se* (vitamin E). Great care has been exercised continually to ensure that the animals have quite fulfilled the requirements we have set up previously as *indication for institution of the treatment*, namely, *apparently normal and sound animals without demonstrable pathological changes in the genitals that have failed to become pregnant after being covered repeatedly.*

In addition to the number of treated animals reported previously—a total of 20 ***animals,*** 16 *of which became pregnant—we have now treated and after-examined* 50 ***animals,*** 33 *of which have become pregnant. Thus we have now treated altogether* 70 ***animals,*** *and* 49 *of them have become pregnant.*

Veterinary surgeons in various parts of the country have informed us of their results with the wheat-germ oil therapy, and their statements correspond very closely to our findings. Also the results reported by Tutt[2] in 1933, obtained by treatment of sterility in cows with wheat-germ oil, agree with our findings. The preparation used in the treatment of all these last-mentioned fifty animals has been "Fertilan,"[3,4] which is manufactured by Medicinalco, Ltd. (Copenhagen), after our directions. It was given by intramuscular injection in a dose of 20 c.c. per cow. There is as yet no established international unit for vitamin E. The method employed to estimate the vitamin E content of Fertilan has been published recently.[5]

Some veterinary surgeons have called our attention to the fact that this preparation, which, of course, is sterile, may now and then give rise to a rather considerable swelling of the muscles into which it is injected. On further investigation it was found that this had happened also to one of the animals in the first series of experiments, and later this has happened in three or four cases, but the swelling subsided subsequently without doing any harm whatever. *We advise, therefore, subcutaneous injection instead of intramuscular*; thus a swelling at the site of injection may possibly be avoidable. Besides the above-mentioned experiments, the preparation is employed also as an adjuvant in treatment of various uterine and ovarian conditions. These cases fall outside the indications, however, which we have set up for this therapy, and naturally the therapeutic effect obtained cannot with certainty be ascribed to wheat-germ oil (vitamin E) *alone*. Of course, *no* case of such complex treatment is included in the account above.

As some colleagues have reported that treatment with Fertilan was followed shortly by vigorous heat, we have employed this preparation experimentally with a view to this effect in animals that failed to get in heat, but we have not seen any results that would warrant the employment of the preparation for this purpose. We may mention, however, that we have treated experimentally a group of breeding sows (six animals) which failed to get in heat post-partum. The treatment was given on September 23rd, 1932, with 10 c.c. of Fertilan to each sow, and according to the owner of the animals, all the sows were in heat at the same time, 11–14 days later. The preparation has been used also in non-fertile breeding sows, and our own results, together with those reported by colleagues, show about the same favourable effect as obtained in treatment of cows (about 70 per cent. pregnancy).

In previous papers we have claimed that it would be reasonable to assume that vitamin E preparations might be used to advantage for therapeutic purpose in sterility. The continued experiments here reported have corroborated this

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view, as it may be established with certainty that in many cases the condition of sterility appears to be due to a vitamin deficiency which can be remedied by treatment with wheat-germ oil (vitamin E, Fertilan). As to the rôle of nutrition in the question of fertility, we wish to refer to an excellent review by Leitch.[6]

In our opinion the experiments with Fertilan therapy ought to be continued, and we wish again to emphasise that it is very important prior to the treatment to examine the animal very carefully, and even then one will not be able always to exclude the many conditions that may preclude or interfere with a favourable outcome of the treatment. The preparation is no panacea, indeed, and it is not to be expected that its employment will give only good results if it is used indiscriminately in all cases.

According to Andersen,[7] it appears as if the treatment may be effective also when given per os; but we wish to point out that no investigations have been reported which suggest that sprouting wheat, as employed by Andersen, is more rich in vitamin E than is non-sprouting wheat. As vitamin E is localised to the germ which makes about 1½ per cent. of the weight of the grain, it may be that intensive feeding of wheat-germ might prove just as effective as parenteral administration of wheat-germ oil, but it would certainly exclude the scientific control of the results. It is also to be kept in mind that possible disturbances in the absorption of food elements from the intestinal canal may assert themselves on parenteral administration of vitamin E.*

In carrying out these experiments we have noticed, among other things, that when cows have been kept exclusively on meadow pastures throughout the summer they seem to require more vitamin E than do cows which have been kept during the summer on field pasture with clover. As a matter of curiosity, it may be added that our experimental studies on vitamin deficiency as a cause of sterility have been extended at present to include also a fox farm. One of us (V.-M.) will soon publish also some experimental results that demonstrate the significance of vitamin E to the development of the chick embryo.

* In another field of vitamin therapy our experiences show that parenteral administration of vitamin may be far superior to the oral ingestion, namely, in cows (which are said not to require an addition of vitamin B under normal conditions) suffering from various digestive disturbances. In some of these diseases, injection of a vitamin B1 preparation (tikitiki=extract) has proved therapeutically effective against loss of appetite and certain nervous symptoms sometimes present.

Undoubtedly, the conditions governing the absorption of vitamins in the intestinal canal play a far greater pathogenetic rôle in the development of the avitaminoses than has been supposed before.

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PROLAPSED UTERUS IN COWS.

By JAMES BROWN, M.R.C.V.S.
Ramsey, Isle of Man.

AFTER reading the case of above, as detailed by Captain Taylor, M.R.C.V.S., in your issue of November last, I would like to mention a method that I find fairly successful. Of course, there are various ways of treating a case of this kind with the same end in view—the reduction of the uterus as quickly as possible, and with the least pain to the animal.

Take a typical case : On arrival, one generally finds the cow in the recumbent position. Have plenty of warm water with an antiseptic ready ; a sheet under the uterus. Foment and remove all portions of the adherent placenta. Have a wired bale of straw in readiness. The animal is now made to rise, and whenever it gets on its feet the bale of straw is put across and under the belly as close to the udder as possible. Two ounces of chloral hydrate are now given as a drench. The uterus is again cleansed and supported by the sheet. The operation of reduction of the organ is now begun, and in a short time the animal sinks down, or is made to sink down on the sternum, the hind quarters being thus elevated, the reduction is greatly facilitated by the gravity and weight of the organ. The expulsive efforts of the animal are abortive. One can hardly credit the advantage one gains by the animal in this position. When reduction is complete, two pessaries are inserted and a vaginal clamp applied. The animal is allowed to be in this position for ten minutes or so, then the bale is withdrawn and the hindquarters kept elevated. A cleansing drench is left, and a dose of sedative medicine to be given if required. Next day I generally visit and inject an antiseptic lotion into the womb. The ordinary horse catheter can be inserted close to the clamp and pushed in till it reaches the interior of the womb ; one dram of chinosol dissolved in a half-pint of warm water is then injected into the catheter with a syringe. A number of cases require no further treatment. In cases where the animal is unable to rise, the best way is to elevate the hind quarters, but the reduction of the uterus in this position is much more difficult.

In parturition cases, too, I find the wired bale under the belly to be of great advantage. When pressure is put on the belly, the womb is raised, and portions of the fœtus come within reach of the hand that otherwise would be difficult to secure. In breech presentation and malpresentation of the head, the condition is more easily rectified.

ANAPLASMOSIS IN CATTLE IN VENEZUELA.

By E. MORGAN, F.R.C.V.S.
Puerto Cabella, Venezuela.

WE owe a debt of gratitude to Sir Arnold Theiler, who discovered this disease, and afterwards proved that anaplasmosis and piroplasmosis are separate and distinct diseases. Previous to this discovery, a confusion existed regarding these

two diseases, more or less the same as was the case years ago regarding malaria, yellow fever and blackwater fever in man. No one should wonder at this, because they are closely linked together, inasmuch as outbreaks of both diseases often appear at the same time and in the same herd, and even in the same building, and where ticks exist. Furthermore, several of the symptoms are similar. Experiments are now being carried on in some countries in order to try to discover whether flies, mosquitoes, etc., act as carriers of this disease, although the majority of the numerous cases which the writer has seen do not tend to support the theory that flies, etc., act as carriers of this disease.

About six months ago there was a very serious outbreak of anaplasmosis in a large dairy herd of Fresian cattle kept most of the time indoors. In the cool of the evening the females were turned out into a paddock for a few hours, principally for exercise and fresh air. This herd included (*a*) pure-bred imported cows from the southern parts of the United States which had been in Venezuela for several years; (*b*) their offspring, both males and females, from calves up to first calvers, but born in Venezuela; (*c*) imported stud bulls; (*d*) pure-bred bulls born on this farm; (*e*) native cows with a strain of foreign blood.

The buildings are modern, with concrete floors, patent drinking bowls, etc. The first animal taken ill was an in-calf pure-bred imported cow, which first drew the manager's attention because she was gradually getting off her food. Thinking it was purely a case of digestive trouble, he gave her a pound of Glauber salts, which had no effect. Again, the second day, he repeated the dose with similar results. Afterwards I was called to see the animal, which had a temperature of 42°; urine normal in colour and quantity; fæces in small quantities, hard and yellow; mucous membranes anæmic and slightly yellow in colour; animal sometimes with drooping ears, and then suddenly would have a brighter appearance, quivering as a horse does when molested by flies; most prominent jugular pulse. A sample of blood was taken and several slides prepared. The blood was extremely poor, almost like water. After staining and examining under the microscope, the majority of the red cells were seen to be invaded by *Anaplasma marginale*. Samples were also despatched to the protozoologist of the Ministry of Agriculture, who reported that about 80 per cent. of the red globules contained Anaplasma.

Treatment.—Seeing that Trypaflavina (Bayer) had been for several years our sheet-anchor in cases of piroplasmosis (Redwater), and having proved its efficiency in 90 per cent. of advanced cases, it was decided to try the usual dose of 50 c.c. injected intravenously. The animal had already received 2 lb. of Glauber salts. We now gave her medicinal paraffin in pint doses three times a day for two days, as well as the usual stomach medicines such as sodium bicarb., gentian, ammon. carb. and small doses of nux vomica. This line of treatment did not seem to improve matters. The cow kept drinking small quantities of water frequently. The next line of treatment adopted was a pint of castor oil, in which was mixed the normal doses of croton oil and calomel, and again the following day another

pint of neat castor oil. All these proved of no avail. The animal died in about a week's time after the first symptoms of illness were observed.

Post-mortem.—The blood was thin or watery. The yellow colour of the flesh usually met in cases of piroplasmosis was absent, yet the fat, particularly so the omentum, was distinctly yellow in colour. The liver slightly enlarged and the gall-bladder distended with semi-solid bile. Spleen enlarged. Lungs slightly congested, and when cut across large quantities of froth exuded. Heart pale, with very prominent spots, echymosis. So pronounced were the spots that one of the cowmen remarked that the heart had been bruised. The fourth or true stomach was congested. With the exception of a small quantity in the rectum, the contents of the gastro-intestinal canal were apparently of a normal consistency. I wish to emphasise this point, as it is of great importance, because it goes far to prove that the usual purgative medicines are of little if any value in treating cases of anaplasmosis, as the gastro-intestinal canal is in such a state of paralysis that such medicine simply increases its contents and aggravates instead of alleviating matters. Unfortunately we had to use only very small doses of nux vomica, as the animal was heavy in calf.

Within a few days I was called to attend two heifers at the same farm. Upon arrival the manager informed me that he had already given one of the heifers a pound of Glauber salts. Having seen the effects of this medicine in the previous case, I decided to adopt another line of treatment. We gave the heifer which had not yet received any medicine a pound of ordinary salt (sodium chloride) in a quart of water, also to both heifers an injection of 3½ grams of methyl-arsenate of soda (arrhenal). The heifer which had received the sodium chloride afterwards drank great quantities of water, and in about six hours the bowels were discharging their contents freely, and next morning the temperature had dropped from 42° to 41°. The other heifer remained with a temperature of 42°, and the bowels still torpid. We now gave this animal a pound of sodium chloride, and then repeated the injections the following and third day. The heifer which had received the sodium chloride the first day recovered within five days without medicine further than the one dose of salt and the three injections of arrhenal, but the other heifer, in spite of different medicines, died in about five days. The bowels never responded to the medicine. These two heifers manifested the same symptoms as the first cow : Anaplasma in the blood, etc. The post-mortem appearance of this heifer varied but little from that of the cow already described, only that the fourth division or true stomach was normal in appearance and not congested, and there was slight œdema of the lungs. Within the space of a few days another cow appeared ill with similar symptoms, which I need not repeat.

Treatment.—One pound of common salt in a quart of water. One intravenous injection of Apiroplasonina (formula of Professor G. Alessanorini, Rome), also one injection daily for three days of arrhenal. This last-named medicine, *viz.*, arrhenal, is recommended by Edmonds and Walker in their valuable book on tropical medicine. This cow recovered within a week.

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Soon after this case several animals got ill and manifested similar symptoms as previous cases. As I had a journey of several hundred miles to go into the plains to examine horses for mal de Caderas, I advised the owner of this herd of cattle to communicate with the Ministry of Agriculture in order to try and get a veterinary surgeon over from their laboratories to make a study and attend these cows and heifers during my absence. A young veterinary surgeon was sent with his laboratory assistant, whom I met previous to my departure, and explained about the history, etc., of the outbreak. They took samples of blood and necessary material, with the result that they found one or two bipolar organisms either in the blood drawn from one of the cows or heifers, or from a guineapig which they injected with this blood; so they ignored anaplasmosis by saying that the Anaplasma was a factor not worth considering, because apart from the bipolar organisms they found a few Anaplasma in the blood of an apparently healthy heifer in the same building. Furthermore, that this outbreak was hæmorrhagic septicæmia and nothing more. As the owner of the cattle and the writer had handed the case over to this person, we had to let him in the meantime experiment with these valuable animals. Upon my return from the plains I met only the assistant at this farm, who informed me that they had injected all this stock with hæmorrhagic septicæmia vaccine and serum, preventive and curative according to the cases, but seeing that the cases were increasing daily instead of decreasing, they realised that they had been like the man who stepped on a stair that was not there, treating a disease that was not there. They then changed around and commenced treating anaplasmosis by injections of trypaflavina and antimasan, etc. By this time about fifteen animals had died. The owner thought that experiments on these valuable animals were going to end his herd, so he eventually dispensed with them. I was asked to take charge of these cases again. We treated them on the same lines as the last-mentioned case—*viz.*, the cow which recovered—with one very important addition. In cases where the salt failed to act in stimulating the gastro-intestinal canal we injected intramuscularly several litres daily of physiological salt solution. Although we had about a dozen cases in heifers and cows, they all recovered by adopting this last line of treatment, in spite of some of them lingering for about ten days in a weak state.

General Remarks.—Only the pure-bred cows and heifers were suffering, and of these, 75 per cent. of the cases were heifers pure and three-quarter-bred fine stock. None of the bulls manifested the least symptoms of being ill, neither did the quarter-bred native cows, although they were all stall fed on the same diet. There were also a great number of calves of different age up to one year old in this herd, but none of them suffered. The explanation is simple. The pure-bred cows and heifers were the only animals turned out of doors to the paddocks, where unfortunately native cattle were adjoining with only a wire fence between them, and perhaps they were breaking through at night to the paddocks of the fine stock, and not being dipped, they were infecting these paddocks with ticks. Again, it had been a custom to spray all this fine stock with Cooper's solution against ticks up to about two to three months before this outbreak of anaplasmosis occurred;

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but during the last months, on account of some oversight in supplying this material, the cows had not been washed. Furthermore, the feeding ration during these last few months had been greatly reduced, especially bran, which applied to all animals alike. Many of the apparently healthy animals had their blood examined, and we found Anaplasma, but not so plentiful as in the sick ones; but the majority if not all of the animals which suffered were in-calf cows and heifers, and being in this condition, and having poorer diet, may have accounted for their showing less resistance in their blood to Anaplasma. However, we cannot get away from the fact that this outbreak only manifested itself amongst the animals which had been in or almost in contact with the native stock in the paddocks. I have always found that ticks from such areas are far more virulent than ticks brought in with fodder or grass which is cut in areas where cattle have not been grazing for months or years on end.

One important point to bear in mind in order to try and avoid anaplasmosis as well as piroplasmosis in imported fine stud bulls, is not to turn them amongst native cows in yards or fields unless the native cattle are regularly dipped in a standard dipping solution against ticks. It is not sufficient to spray or dip the imported bulls unless every head of native stock is also dipped, otherwise the bulls will soon be infected by virulent ticks from such cattle. Several breeders in Venezuela have lost 50 per cent. of their imported bulls owing to turning them amongst native cows in the yards when the cows have not been dipped. Fortunately, dipping baths are getting more numerous every year in Venezuela.

THE EXCRETION OF ŒSTRIN IN THE URINE OF THE PREGNANT COW.

By JAMES ANDERSON, B.Sc., M.R.C.V.S.

Veterinary Research Laboratory, Kabete, East Africa.

SEVERAL workers have examined the urine of the pregnant cow for the presence of œstrin. Lipschutz and Veshnajakov detected it, but in relatively small amounts, the maximum concentration being 800 m.u. per litre. No increase in the amount excreted was observed during the course of pregnancy. Turner and co-workers reported an average daily excretion of this hormone at the end of pregnancy of 2,911 r.u. per litre. In the early stages the amount excreted was small. The experiments reported in this paper were performed on " native " cattle in East Africa. These cattle are of the humped (Zebu) variety ; they are relatively small in size, slowly maturing, and are poor milch animals. Altogether twenty-two animals were examined at various stages of pregnancy. The urines of several of these cows were tested at frequent intervals throughout the period of gestation.

Prior to injection into experimental animals the urine was treated with sulphosalicylic acid (Wisener), allowed to stand for a short time and then filtered. The

reaction of the filtrate was adjusted to approximate neutrality with sodium bicarbonate, using B.D.H. Universal Indicator. The concentration of œstrin that can be detected by the injection of normal urine treated in this manner is small, ranging from approximately 300 m.u. per litre to 1,000 m.u. per litre. Some little difficulty was experienced in obtaining definite results in the early stages of pregnancy, when the excretion of œstrin is much less than 300 m.u. per litre.

The experiments were carried out under field conditions, and consequently the choice of methods for concentrating or extracting the hormone was somewhat limited. The method which was used for demonstrating small amounts of hormone was that of concentrating the urine by boiling. This hormone is resistant to the action of heat, and no loss of potency ensues from this method of treatment. The disadvantage of this method, however, is that such urine is extremely toxic to mice. The mortality is high, which makes it difficult to obtain definite results. Deaths from the use of normal non-concentrated urine were very few. Preliminary experiments showed that the concentration of œstrin in the urine towards the end of pregnancy was small. The problem therefore was mainly to determine at what stage of pregnancy the hormone could first be detected in the urine, and thereafter to estimate the concentration at various stages of pregnancy.

Gonadectomised female mice were used as test animals. Four or five mice were used for each specimen of urine. Injections were made morning and evening for three days, and on the morning of the fifth day smears were taken from the vagina with a platinum loop needle, stained with Giemsa and examined microscopically. Complete keratinisation of the vaginal epithelial cells was taken as criterion of a positive result.

The excretion of œstrin in the urine during the first 100 days of pregnancy was found to be very small. A specimen of urine collected on the ninety-third day of pregnancy contained only 33 m.u. per litre. This was the earliest period at which a positive reaction was obtained from pregnancy urine. To detect smaller quantities of œstrin it was necessary to concentrate the urine to a considerable degree by boiling. Such concentrated urine proved extremely toxic to mice, and killed the majority before the completion of the test. In the few cases in which the mice survived the results were all of a negative character. Specimens of urine taken from cows on the sixty-seventh and seventy-eighth days of pregnancy failed to show a concentration of 33 m.u. per litre.

After the first 100 days of pregnancy the hormone was more readily detected, but the urine had still to be concentrated before this was possible. It was not until comparatively late in pregnancy, from about the one hundredth-and-fiftieth day onwards, that a positive reaction could be obtained with non-concentrated urine. Notwithstanding this, however, a gradual increase in the amount of hormone excreted throughout the course of pregnancy could be demonstrated. Particulars of the excretion of œstrin during pregnancy are given in the following table :

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TABLE I.

Period of Pregnancy	No. of m.u. per litre
Conception 78th day	Less than 33 m.u.
79th–100th day	,, ,, 33 ,,
101st–150th day	,, ,, 443 ,,
151st–200th day	,, ,, 555 ,,
201st–250th day	,, ,, 833 ,,
251st day, parturition	,, ,, 1,100 ,,

The number of m.u. per litre of urine shown in Table I represents the maximum amount found at the particular stage of pregnancy. In most cows the highest concentration noted was 833 m.u. per litre of urine, although in a few cases it did not exceed 555 m.u. Only in one cow was a concentration of 833 m.u. exceeded, and that in cow No. 3 on the two hundred and seventy-sixth day of pregnancy, on which 1,100 m.u. were found. A considerable degree of variation in the concentration of the hormone in the urine was observed in all animals. An example of this variation is shown in Table II.

TABLE II.

Cow No. 3. Period of Pregnancy	No. of m.u. per litre
241st day	277
248th day	666
265th day	555
269th day	333
276th day	1,100
282nd day	833

This variation may be due to (*a*) variation in the rate of secretion of the hormone ; (*b*) variation in the rate at which the hormone is excreted ; and (*c*) variation in the response of the test animal. Not only may there be a variation in the rate at which the hormone is excreted, but this rate may also vary in relation to that of urine. It is probable that a more uniform rate of excretion would be noted in a twenty-four hours specimen of urine. The test animal would seem to play a comparatively minor part in causing this variation ; it is greater than would be expected if it were merely due to a differential response on the part of the mouse.

After parturition the hormone disappeared rapidly from the urine. One specimen of urine collected on the day of calving contained 833 m.u. per litre. A further specimen taken twenty minutes after calving contained a similar amount, but after eight hours the urine failed to show 300 m.u. per litre. Unfortunately insufficient material was available for the testing of concentrated specimens. Urine from another cow, however, ten hours after calving contained 110 m.u. per litre. A specimen of urine taken from this particular cow twenty days after calving did not contain 16 m.u. per litre.

A biological test for the diagnosis of pregnancy in the mare is based on the presence of œstrin in the urine (Crew, Miller and Anderson). The essential

requirements for such a test are (*a*) the hormone must appear in the urine in a diagnostic concentration (*i.e.*, in an amount greater than occurs in the non-pregnant animal) in the early stages of pregnancy, at a time before a clinical diagnosis can be made with certainty, and (*b*) the test must for routine procedure be capable of being easily carried out. In the cow œstrin is excreted in such small amounts in early pregnancy that the urine would have to be concentrated or extracted before it could be detected. It is not excreted in readily detectable amounts until comparatively late in pregnancy, and by this time a clinical diagnosis can be made. It is therefore improbable that the excretion of this hormone in the urine will prove of much use for the biological diagnosis of pregnancy in the cow.

In comparison with the amount of hormone excreted by the pregnant mare (over 200,000 m.u. per litre of urine has been observed towards the end of pregnancy) the amount excreted by the cow is exceedingly small. This may be due to the elaboration of a small quantity of hormone or to the elaboration of a large amount, most of which is utilised by the organism.

Summary.

(1) In the early stages of pregnancy the amount of œstrin excreted in the urine is small. By the seventy-eighth day of pregnancy the urine failed to show a concentration of 33 m.u. per litre. (2) The concentration increased from 33 m.u. per litre on the ninety-third day of pregnancy to a maximum of 1,100 m.u. per litre towards the end of pregnancy. (3) After parturition the hormone disappeared rapidly from the urine.

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WAR ON THE WARBLE.

By DUTHIE WEBSTER

Tarves.

GOVERNMENTS are, I believe, genuinely anxious to do something to help the farmer, and our present Government particularly so. The more readily will help be given if the subject is without politics. The warble fly seems in every way a suitable subject. He is absolutely impartial, alighting equally readily on the just and the unjust, on the "Communist" or "Facist." Given a suitable "host," Mr. and Mrs. Warble, and Miss, are there. As a youth, I was once taken through a tannery and was astounded to see the number of hides ruined by warble fly holes. I expected then to see something done immediately to stop such waste and loss; but here we are, forty years later, nothing done, and the pest more prevalent than ever. The life-history of the warble is known, and many efficient remedies

are approved, *but unless the remedies are enforced by law it is hopeless for the individual to do anything.* Every owner of cattle should be compelled by law to destroy by treatment with " derris " powder, or some similar remedy, the maggots imbedded in the backs of his stock. Imported animals must also be treated. Irish yearlings are often terribly infested. Given two years compulsory treatment few maggots would be left to hatch out into the fly, and at the end of that time, say, two years, *no* cattle should be admitted into this country with warble swellings on them. The loss in hides at present is put at over a million pounds sterling. The loss, however, far exceeds this sum through the damage done to the carcases of nearly every summer-fed animal by festering warble holes in the most valuable parts of the meat, not to speak of the damage to all milk cows and breeding stock through cattle galloping in the fields. The life-history of this pest is now well known, also its treatment ; and it only remains for Governments to enforce the remedy. I am glad to see county councils moving in this matter, and I am pleased to give this unscientific testimony to the great need for some immediate steps to be taken to stop this heavy financial loss to the farmer. It is well that THE VETERINARY JOURNAL should add its weight to get enforced by law the information already accumulated through many scientific societies. Now is the only time we can call our own, so let us pray for immediate action.

THE WARBLE FLY FROM THE FARMERS' ASPECT.

By WILLIAM VALENTINE

Chairman of the Diseases of Animals Committee for the County of Aberdeen.

FOR a long time farmers in general were under the impression that the loss on hides incurred through the warble fly did not affect the price they received for fat stock. Lately, however, this opinion has been considerably modified, and farmers are now realising that warbled hides make a material difference to the value of fat cattle. Not so very long ago the prevalent opinion was that somehow or other butchers and tanners bore the loss, but this is entirely erroneous.

Although the loss arising through damage to hides caused by the warble fly is quite easily calculated, the loss created through what is termed " licked " beef is somewhat more difficult to determine. When the warble in its early state reaches its usual resting place—the back—it perforates the hide, presumably as a breathing hole, and certainly an escape hole when ripe to begin its chrysalis stage. It is this same hole which causes the damage to the hide, as it never regains its original strength or substance. When these holes are multiplied to the extent they often are, the hide is perforated and weakened in substance to such a degree as to depreciate its value considerably. Hides are generally marketed according to the custom of the locality, in three classes according to weight, and prices vary for each class. Heavy hides, 70 lb. and upwards, realise the highest price ; 60 lb. to 69lb. come next, while those 59 lb. and under make the lowest price.

Hides are classified as follows: First Class A.—Free of warbles and all other faults. First Class B.—Hides are allowed up to four warbles, but because of these four (or less) warbles the price is reduced $\frac{7}{8}d.$ per lb., $\frac{1}{2}d.$ per lb. and $\frac{1}{2}d.$ per lb., according to their weight-class as outlined above. Second-class hides are those with over four and up to twenty-five warbles, and the loss on these is $1\frac{1}{4}d.$ per lb., $\frac{3}{4}d.$ per lb., and $\frac{7}{8}d.$ per lb., according to weight-class again. It can readily be seen from the foregoing that the loss throughout the country amounts to a very large sum annually, especially when the percentages of Class A, Class B, and second-class hides are respectively approximately 8 per cent., 27 per cent. and 65 per cent. In order to impress farmers especially what these losses mean on fat cattle, if, say, a hide of 72 lb. is second class through warbles, the loss amounts to 7*s.* 6*d.*; if 64 lb., 4*s.*; and if 56 lb., 4*s.* 1*d.*

Farmers, after studying these losses, cannot do otherwise, surely, than make every effort to minimise them, if not to eradicate the cause of them altogether. To do so would not necessitate a great deal of bother, and they would be amply repaid. The loss incurred through "licked" beef is more difficult to assess, but in many cases it amounts to $\frac{1}{4}d.$, or even $\frac{1}{2}d.$, per lb. on the whole carcase. But probably a greater loss arises through buyers withholding their competition when animals with obviously warbled hides are being sold alive. After all, a buyer does not wish what should be superior beef to appear inferior when dead, and on this account very often does not offer when otherwise he would do so.

Another loss which cannot be estimated arises through conditioned animals "gadding" or "pricking" when the warble fly is working in its usual season. Anyone who has watched cattle under these conditions may see an animal stand still for a moment, seemingly terror-struck, then all at once put his tail in the air and lash about with it and set off at the gallop with all his fellows following until some shady part, or water, if possible, is found, when he will again regain his equanimity. But this careering about does an infinity of harm, to fattening cattle especially.

The loss caused through this pest, the warble fly, must be enormous, and every effort ought to be made to combat the evil. Farmers, through their Union and by any other means, should approach the Ministry of Agriculture and request a compulsory order for treatment, which should be applicable to all store cattle imported from whatsoever country as well as home. It is difficult to understand why such action is delayed.

NOTES AT RANDOM FROM A BOVINE PRACTITIONER.

By OSCAR STINSON, M.R.C.V.S.
Appleby.

THE treatment of an average case of malpresentation in a calving cow should not be done in the recumbent position.

Pulleys for slinging the cow up by the hocks on to a beam for treatment in such a case are indispensable.

Both arms should be used when correcting the average malpresentation.

It is possible to get one shoulder-joint into the vagina.

The very fact of the joint actually being in the vagina allows movement and manipulation to be carried out which could not be accomplished with shoulder-joint outside.

The actual presentation is unimportant when compared with the method of examination (preliminary routine) in a calving case.

A cow which is likely to go down and to remain down should not even be examined before she has been removed safely to a place where there is a beam high enough for slinging.

Spinal anæsthesia is indicated in bovine obstetrics to lessen tonic contraction of the uterus, and should be given always in a place where there is a beam in case the patient goes down, when she then can be slung.

Parsetic, 10 c.c., will frequently be enough (more can be given if necessary).

The ninety minutes immediately following the administration of any dose (whilst she is still standing) will frequently enable the operator to accomplish a delivery.

A patient can be safely chloroformed and slung up after spinal anæsthesia.

Slinging lessens tonic contractions of the uterus and enables the fœtus to be repelled (as also does spinal anæsthesia) into the uterus to facilitate correction of malpresentation.

A cow should be "cleansed" after serious interference, if it can be conveniently accomplished.

By clam or other means the uterus should be prevented from being everted after a serious calving case (whether or not the patient has cleansed).

Three or four pounds of lard are useful as a lubricant in calving cases, and particularly in heifers.

There is nothing better for the prevention or cure of vaginitis than iodoform.

In cases of septic vaginitis in heifers the arm should not be introduced into the vagina for examination, or other purpose, if force is required.

The irritation caused by the introduction of the hand and arm (when force is not required) is beneficial.

The daily introduction of pure iodoform with rather more than gentle massage during the application is good treatment.

The simple injection of many antiseptic solutions in some cases is positively bad treatment and can bring about fatal issues.

Spinal anæsthesia is easily accomplished, and there need be no fear if the needle has to be introduced several times before the correct position is found—under ordinary antiseptic conditions.

Whatever treatment is thought necessary, an examination after a serious calving case should be made about the third or fourth day, as accumulation of fluid in the uterus is common.

In eversion of the vagina before calving, the bladder (full of urine) is sometimes the chief obstacle, being actually in the everted vagina. It is necessary to empty the bladder either with the catheter or by puncturing with a trocar and cannula through the vaginal wall.

Occasionally after calving the everted vagina contains most of the uterus. Before replacing it may be necessary to evert the uterus through the external os, after making incisions through the os, which can be seen and felt outside. The vagina and uterus are then replaced.

Tape sutures with long ends should be used for the vulva when subsequent examinations of uterus are anticipated.

An ordinary bull ring (a piercing one) is useful instead of clams and sutures after bad cases of eversion of the vagina before or after calving ; it can be left in position for months, if necessary, without tearing away.

In testing by the double intradermal method it is an advantage to test at two points.

Teaching calves to take cod-liver oil in the bucket-food for about six weeks before turning out, and continuing the administration whilst at grass, often prevents hoose.

A recumbent cow should not be left (or an attempt be made to get her to rise) whilst her head is near and facing a wall or other obstacle. Also she should be kept as much as possible with the hind quarters higher than the fore.

Milking out the udder of a cow suffering from so-called post-parturient hyperpiesia (acetonæmia) only when it is tense with milk, for a fortnight or so, is the specific treatment. The same treatment often brings about the recovery of a case due to other troubles.

In most gastro-intestinal troubles (not diarrhœa or post-parturient dyspepsia) the abdomen appears to be too full (not tympanitic). The disappearance of this fulness, the sides becoming flat, points to a favourable prognosis.

The fulness is of great diagnostic value.

A " splash " in the right flank, brought about by serious percussion or palpation (clapotage), especially in the winter time when cattle are inside, is diagnostic of gastro-intestinal trouble.

In examining young cattle for tooth trouble it is necessary to examine the teeth very carefully, as trouble is frequently caused by the temporary teeth—when they cannot be moved even the slightest with the fingers—being jammed.

The use of the tooth rasp frequently conveys to the mind whether or not there is tooth trouble, and it may even bring about the loosening of the offending tooth.

When extracting a tooth it is always advisable to examine the corresponding tooth of the opposite side.

Common causes of painful and swollen joints are metritis, mastitis and vaginitis.

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Soft swellings caused by fluid under the skin in front of the knee and outside of the hock should be freely opened.

Soft swellings over the stifle-joint should be left severely alone.

In the treatment of mastitis (not gangrenous) frequent syringing of the quarter and downward massage carried out thoroughly, sometimes for hours a day, bring about surprising results. Drainage is surely a good treatment, and is indicated before any other treatment.

The use of teat syphons or teat bougies is contraindicated.

In treating teat-end conditions where the milking is difficult, the use of the " bracial incision " instrument (one incision), and then, if necessary, the use of MacLean's knife, is the best treatment.

Rolling the teat-end sharply between the hands before milking is frequently of the greatest possible assistance.

It is well to keep in one's mind that tympany of the rumen is symptomatic of tetanus.

One should never forget, as in all other branches, that a thorough and complete clinical examination of a patient at the first visit as a routine is one of our duties (to ourselves as well as to our clients).

Disease of the bladder where the lining is abnormal can frequently be diagnosed definitely by digital exploration per the urethra, except perhaps in the heifer.

When bloody urine is in evidence, do not overlook the possibility of bold doses of turpentine having been administered.

Decorticated ground nut cake in the proportion of one to three of rolled oats is a balanced dairy ration and can be fed 3½ lb. per gallon of milk. It is a cheap dairy ration.

Bran is rich in phosphorus. It is inadvisable to feed bran to a cow likely to suffer from milk fever (Little). It increases milk yield.

A cannula introduced into the rumen (and secured) of a choking cow brings about recovery in 99 per cent. of cases if left in for twenty-four to thirty-six hours.

On examining a cow when seriously lame behind whilst walking, do not be too ready to diagnose fracture of the pelvis on hearing apparent crepitation ; such evidence is common and normal in a very lame cow when made to walk.

The operation for sturdy in young cattle brings about at least 80 per cent. recoveries.

The side for operation is the one giving the higher note on percussion.

When the arm is stained distinctly chocolate colour after rectal examination, a fatal prognosis can be made.

Rupture can be definitely diagnosed by examination per rectum when the uterus in an in-calf cow has deviated from its position (right), when there is a rupture-like swelling low down in the left flank.

A string of clotted blood is found in the jugular vein in cases of sudden death from lightning stroke (this is common, of course, in other conditions), but it puts out of count the possibility of anthrax being the cause of death.

Abstracts of Current Literature

Technique of Anæsthesia of the Foot in Bovines. By M. YVES PINCEMIN, D.V.M., *Recueil de Méd. Vét.*

THE affections of the foot in the ox constitute an important branch of bovine pathology: operations for picked-up nails, interdigital panaritium, foul in the foot, horn cracks, amputation of the phalanx, are common things. Technique of them is easy. The author mentions the methods of anæsthesia used by Pesadoro, Wester and Beyers, and Sönksen, and states his objections to them. He then describes his own procedure, which is as follows: He operates on the cast animal, the foot being fixed to an iron stake driven into the ground. A Pravaz syringe of a capacity of 10 to 20 c.c. and a hypodermic needle four centimetres long are required. As a general rule we take the middle of the first phalanx as the point of choice for the injection.

FIG. 1.

a—Muscular cutaneous nerve.
b—Anterior tibial nerve.
c—Concentric collateral palmar nerve.
d—Branch of interdigital anastomosis.
e—Collateral concentric dorsal nerve.
f—Nerve of the plantar cushion.
g—Internal lateral ligament.
h—Inferior cross ligament.
i—Anterior extensor tendon.

(I) Anterior Limbs.

(*a*) *Anæsthesia of the Concentric Dorsal Nerves.*—The needle is forced down obliquely (Fig. 1) into the anterior interdigital space over a length of about two to three centimetres (Fig. 3). Ten c.c. of a 1 per cent. solution of cocaine is injected.

(*b*) *Anæsthesia of the Concentric Palmar Nerves.*—The needle is implanted obliquely down (Fig. 1) into the posterior interdigital space (Fig. 2). Ten c.c. of a 1 per cent. solution of cocaine is injected.

(*c*) *Anæsthesia of the Excentric Palmar Nerve.*—On the external surfaces of the digits one can make out the nerve outline following the line of the flexor tendons (Fig. 4a). One injects on to this nerve a dose of 5 c.c. of 1 per cent. cocaine.

(*d*) *Anæsthesia of the Excentric Dorsal Nerve.*—Across the digit in front of the preceding point, that is at the level of the middle of the lateral face of the digit,

one injects likewise a dose of 5 c.c. of 1 per cent. cocaine (Fig. 4b). The solutions of hydrochlorate of cocaine at 1 per cent. are adrenalised. Numerous observations which we have been able to make on animals in the clinic have shown us the effectiveness of these tests. Anæsthesia is perfectly established in ten minutes and lasts three-quarters of an hour to an hour. In only one case did partial anæsthesia occur, on account of great swelling of the pastern of the animal due to arthritis of the coffin joint.

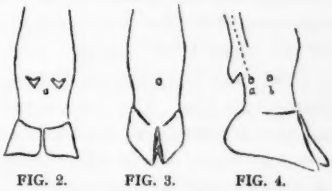

FIG. 2. FIG. 3. FIG. 4.

o Point for anæsthesia of the concentric palmar nerves.
o Point for anæsthesia of the concentric dorsal nerves.
o Points for anæsthesia of the excentric nerves: (*a*) palmar; (*b*) dorsal.

(II) Posterior Limbs.

One uses the same technique for anæsthesia of the plantar nerves. Sönksen recommends also anæsthesia of the sciatic nerve. To this end he implants a needle, about 25 centimetres long, into the conjunctive space of the ischio-tibial muscles, biceps, femoral and semi-tendinous with a dorso-cranian direction, perpendicularly to the middle posterior surface of the femur. He injects 60 to 100 c.c. of a 1 per cent. solution of tutocaine, but does not obtain any constant results. The different anæsthesias of the sciatic nerve which we have been able to make with the same doses of a 2 per cent. solution of stovaine or a 1 per cent. solution of scurocaine have never been complete. We note finally the surprising results that we have always obtained in epidural anæsthesia with a dose of 100 to 150 c.c. of a solution of 1 per cent. scurocaine; at the end of twenty-five minutes the insensibility of the foot is total, and lasts three to four hours.

The Use of Milk in Switzerland. (Contagious Abortion in Cows and Bang Disease in Men.) By DR. E. GRAUB, of Bern., *Schwz. Arch. f. Tierhlknde.*

MOST Swiss people consume milk in a cooked state, either undiluted or mixed with coffee. For such folk there is no danger of Bang infection through the use of milk. It may also be observed that this old custom has its value to-day, and not only protects consumers against Bang, but also against tuberculosis and other diseases transmitted by milk. This milk is household milk—domestic milk or consumers' milk, whatever one may call it. Under the influence of the sport movement in recent times there has sprung up a demand for cold milk. Whether this is previously cooked or not is of no moment to the consumer. The chief thing is that it is palatable, of an acceptable temperature, and distributed in a handy form. This milk is in demand at sports places, festivals, as a beverage and or nourishment; and also at bathing places, in military service, in the manufacture of nursing supplies, and in the future will be more in demand in hotels and guest rooms. In order to protect this greatly increasing circle of milk consumers from transmission of disease through milk, it suffices to supply such milk in a pasteurised state. It may be labelled as milk ready for drinking, or drinking

milk, as is done by the Union Dairy in Bern ; or it may be sold in the trade with the plain label " Pasteurised." It is very important that cream used in butter making and confectionery should be pasteurised. If previously pasteurised, unheated cream presents no danger. Qualitatively, pasteurised milk has nothing over household milk. The expense of pasteurisation and special filling of distributing utensils makes the price higher than that of household milk. It is very important that this drinking-milk, as well as cream for butter making and for use raw, should be labelled " pasteurised." Pasteurisation must be tested, and be under bacteriological and biological control if the operation is to be of real and effective service. The last category of milk consumers are the sick and infirm, and the children who require nourishment by raw milk under doctors' orders, as well as those people who, rightly or wrongly, believe that only raw milk makes for growth and nourishment. Such milk should come from specially selected cows which clinically and by suitable biological methods have been declared free from abortion, tuberculosis and other infections (such as mammitis). It is important that these animals should be maintained under specially favourable conditions of hygiene, housing and feeding, and they should be under veterinary control. This control should be clinical, and comprise bacteriological and biological testing of the milk. The carrying out of these demands will heighten production costs, so that one must reckon on an increase over the price of ordinary milk. On this account one seldom finds any increased consumption of this class of milk. On the other hand, it is possible near large centres of population to establish special measures to secure a good supply of this milk. A uniform nomenclature for the designation of different categories of milk is wanting. Regulation by an authoritative order would be of great value in clearing up the present indecisive nomenclature. The foregoing or similar conditions would do away with danger from Bang infection and tuberculosis. Measures providing against contact infection will also act favourably, so that Bang infection as a disease of the future is scarcely to be feared.

Reviews

Les Actinomyces du Groupe Albus (" ACTINOMYCES OF THE GROUP ALBUS "). By JACQUES DUCHE, *Doctor of Science*. Editors : PAUL LECHEVALIER & FILS, 12, Rue de Tournon, Paris 6. 1934. Price Fr. 100.

THIS is the sixth volume of the mycologic encyclopædia. Actinomyces constitute one of the most complex species of micro-organisms. The species or the varieties of this genus are very numerous, and it is practically impossible to identify them. In this volume the author takes up the study of a saprophytic group and suggests a method to arrive at the identification of the species. A revision of literature bearing on Actinomyces producing a white inflorescence, liquefying gelatine, and having a strong musty odour, shows that numerous species described are in reality mixtures of distinct species and of their mutations. This fact led the author to make monosperm cultures of these microorganisms. This technique shows that the microscopic aspect of the

thallæ has a remarkable constancy which may apply generally to all the species; and it is on these purified stalks that the author studies the characters of Actinomyces. Before giving new diagnoses of species the author makes a critical study of methods of determination of the Actinomyces. The general considerations, to which a whole chapter is devoted, are applicable to all the hyphomycetes as well as to the bacterias.

Passing to a particular study of the characters of Actinomyces of the group Albus, the author indicates the way in which these characters must be noted. Finally, an application of these principles is made to Actinomyces, isolated in monosperm cultures. The consideration of the morphology of the thallæ, which is an amplification of the morphology of the elements comprising them, enables one to find a very large number of early observed characters very constant and very differential as a condition of following strictly defined methods of culture from the physico-chemical point of view. It is thus that a certain number of new types are isolated and defined. Some photographs of cultures of these types form plates at the end of the book. The generic name of Actinomyces is discussed at the beginning of the volume and is followed by a very complete bibliography which also contains a list of medical works bearing on the microbiology of the soil and physiology. The volume will be useful to doctors, veterinary surgeons, agriculturists, physiologists and biologists. M.

Report of the Committee on Cattle Diseases, 1934. (Economic Advisory Council). Published by H. M. Stationery Office. Pp. 230. Price 2*s.* 6*d.*

On November 2nd, 1932, the Prime Minister appointed a Committee of the Economic Advisory Council with the following terms of reference: "To consider what practical measures can be taken to secure a reduction of disease among milch cattle in this country, and to report upon any changes desirable in the existing administrative practice; and, in particular, upon the value and practicability of methods for reducing the incidence of bovine tuberculosis and improving the milk supply." The result of their deliberations has recently been published in a Report of urgent interest, not only to those who have to do with the dairy cow and milk, but also to those who are engaged on the subject of Public Health, especially in regard to tuberculosis of cattle and its transmission to man. *Every veterinary surgeon should purchase a copy for perusal and retention on his bookshelf as a work of reference.*

The veterinary official whose duties include the inspection of dairy cattle will find something of interest on every page, as the subject is dealt with under numerous headings, the following being illustrative: (1) "The present system of milk production and supply," including the present position of the dairying industry. (2) "Cattle diseases and the diseases of man associated with them." These include tuberculosis, contagious abortion and undulant fever, mastitis, and the milk-borne epidemics. The subject of pasteurisation of milk and its effect on the constituents of milk is carefully considered, as also the conditions under which milk should be added as a supplemental diet to children. Many details are put forward and discussed, all of which will necessitate well-organised veterinary inspection and control of the nation's supply of milk and meat, the initial attack being organised against tuberculosis; and in the final portion of the book there are statistics and tables which illustrate only too clearly how little has been done on these questions by Public Health Authorities in the past, and how much the services of the veterinarian will be needed in the future. Agriculture is now slowly but surely moving upwards, and it is for the veterinary profession to prepare itself for a busy and useful future as helpers who are a definite necessity in this scheme to help equally the workers in the country and the towns.

As stated above, every veterinary surgeon should get the Report and peruse it carefully, the younger generation in particular, *for the future of the profession is foreshadowed in a way which cannot be mistaken.*

News

INSPECTION OF MILK HERDS.

At last night's meeting of the Conservative Parliamentary Agricultural Committee a deputation was appointed to wait on the Minister of Health on the provision by local authorities of adequate veterinary inspection in connection with the scheme for accredited herds under the Milk Marketing Board. This is considered to be a matter of urgent importance in view of the fact that the scheme is to operate as from October 1st, and it is desirable that local authorities in every district should be in a position to provide for an efficient veterinary service by that date, so that the scheme may come into operation simultaneously over the whole country.—*The Times*, July 18th, 1934.

Personal

The congratulations of the profession are given to Major Joseph Abson, Mr. William Woods, Mr. E. H. Locke and Sir Arnold Theiler, for the manner in which their services to veterinary science have been appreciated. All are so well known that they not only need no introduction to their colleagues, but their respective and individual " doings " need no repetition. The presentation which the Council of the Royal College of Veterinary Surgeons made to Major Joseph Abson as a tribute to a faithful service of forty years in their harness, carried with it a warmth of comradeship which has never been exceeded, and no man will be more missed whenever practical and cautious deliberation is required over matters concerning our professional future.

The bestowal of an Honorary Degree by a University is only done on rare occasions, and even then only for exceptional merit. It is an honour to be well gained, and which cannot be bought. The recipient brings credit not only to himself but to the profession to which he belongs, and in honouring William Woods the Victoria University of Manchester confers the first of this kind on the veterinary profession.

The degree of Master of Science (*honoris causa*) conferred upon our much beloved " Father of the Examiners " (as he is affectionately known to the students of our Colleges) is approved of as much by them as it is by the Royal College Council (who elected him for the first time as long ago as 1888) and his brother practitioners.

The unanimity with which Mr. Locke's name was accepted for the Presidential Chair was tribute to the high opinion in which the name of Locke is held, not only in the Council, but in the profession, and it was with pardonable pride that Mr. Harry Locke stepped into the Chair so worthily held in 1910 by his worthy father.

Sir Arnold Theiler's selection for an Honorary Fellowship of the Royal Society of Medicine is also a rare distinction, and although only one more added to the many honours possessed by this brilliant and modest worker in the cause of veterinary science, will be a source of gratification to this learned scientist. His friendships are world-wide, but amongst none has he warmer admirers than he finds amongst his British *confrères*.

That all may live long and have good health to enjoy their well-earned honours is the wish of all our readers.

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THREE BREEDS

BY

Lt.-Col. SIR MERRIK BURRELL, Bart., C.B.E.,
EDITH BRADLEY
AND
E. CRAIG TANNER

Dual-Purpose Cattle
The Jersey
The Hereford

VETERINARY JOURNAL SUPPLEMENT
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DUAL-PURPOSE CATTLE

By Lieut.-Col. SIR MERRIK BURRELL, Bart., C.B.E.

In order to make understandable any article on dual-purpose cattle, it is necessary to define strictly what is aimed at by the breeders of this type of cattle. This is all the more important, as lately certain people who have gone milk mad have set up erroneous definitions of dual-purpose cattle in order to be able to decry them the easier. Breeders who have specialised in producing types of cattle suitable for beef production have, in some cases, let the pendulum swing so far in that direction that the heifers, and even the cows, can hardly rear their own calves. Other breeders who have specialised solely for milk and butter production have let the pendulum swing so far in the opposite direction that the bull calves are quite uneconomical to rear as steers.

The breeders of the true dual-purpose type have succeeded in evolving breeds of cattle which give an average annual yield of milk and butter-fat comparable

[*Photo by Sport & General*

RED POLL COW "KNEPP PRUDENCE 4th"

with other breeds of equal weight, and the steered bull, calves of which can be reared into first-quality carcases of beef, maturing as quickly as the beef breeds, and dying with a low percentage of waste. They avoid trying, let alone claim, to breed females that will give extravagant yields of milk under highly artificial conditions; nor do they expect to win carcase competitions open to all breeds; but they do claim to have produced breeds which under ordinary good farming conditions produce both heifers which prove profitable as milkers and steers which fatten well. And they also claim, quite justifiably, that a true dual-purpose cow will milk heavily and yet remain in good condition.

Careful selection is needed always to avoid drifting too much towards the beef or towards the milk type. But in the breed with which I am most familiar, the Red Poll, I have found that so long as one concentrates on short and fine-boned legs, well sprung ribs and deep bodies, one can breed for milk as much as one likes, and not lose the adaptability to fatten. I should classify as beef cattle: the Highland, Aberdeen Angus, Galloway, Hereford, Sussex, North Devon, Long Horn and Shorthorn; as dairy cattle, Friesians, Jerseys, Guernseys, Kerrys;

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and as dual-purpose, the Red Poll, Dexter, Black Welsh, Park Cattle and South Devon.

Curiously enough, the most numerous breed of all, the dairy Shorthorn, is the most difficult to classify. It should be dual-purpose, but the tendency of late years to concentrate on milk production has narrowed their frames until the steers of this breed have deteriorated considerably in type. Only the best of this breed maintain the dual-purpose characteristics.

I will now turn from dual-purpose cattle in general to the Red Poll in particular, as being the only breed about which I can write with any sort of authority. The whole history of the various breeds of cattle in Great Britain is bound up with that of the penetration of this country by alien human races. The Red Poll's origin is concerned with two : It gets its beef-forming power and colour from the Red Cattle imported by the Anglo-Saxons and its propensity to milk heavily and hornlessness from the polled cattle which came from Scandinavia with the Norsemen at the conclusion of the Anglo-Saxon invasion. The Anglo-Saxon cattle are still represented almost unaltered in the modern Sussex and North Devon breeds. The origin of the polled cattle of the Norsemen has been traced by historians across Europe to Southern Russia. They are recorded by the ancient Greeks and Romans, and Herodotus mentions them as being in the possession of the Scythians. We learn of them in Assyria and Babylonia about 700 B.C., their remains have been discovered in Switzerland and Holland dating to about 2000 B.C., and there are records of them in Egypt in 2150 B.C. When crossed with the red Anglo-Saxon cattle their polled characteristic wiped out the horns, but the red colour prevailed.

It was not until early in the eighteenth century that systematic breeding of these cattle started. In 1873, breeders began to register their cattle, and in 1888 the Red Poll Cattle Society was formed. All through their history one finds tributes paid to their docility, and to-day one of their great advantages is that one can pack them closer in yards, and the manger space necessary for three or four-horned cattle will accommodate ten to twelve Red Polls. They are very hardy and thrifty, and will thrive on poor land whether heavy or light.

The description of them, written by John Kirby in his " Suffolk Traveller," in 1735, still holds good to-day. He says : " They should have a clean throat with little dewlap, a snake head, thin and short legs, the ribs well sprung from the centre of the back, the carcase large, the belly heavy, the back-bone ridged, the loin narrow, the udder square, large, loose, and creased when empty, the milk veins remarkably large and rising in knotty puffs."

Their hardiness and sound constitutions enable one to keep them under natural conditions, with the result that they have a high resistance to disease, and so breed regularly, live long, and show a high average milk yield over a number of years without any sensational yield in any one year. I will quote only a few instances : Linda Third averaged 9,619 lb. of milk for ten years, and won first prize at the R.A.S.E. Show at Derby. She bred a heifer which won many prizes at Norwich and Smithfield, and was champion of all breeds at Ipswich Fat Stock Show ; also a steer which was the cup winner at Smithfield. Another daughter won at the dairy show, and averaged 10,293¾ lb. for three years. Rendlesham Fay lived until she was seventeen, averaged 11,000 lb. of milk the last five years of her life, and bred the winning steer at Ipswich. At last year's Smithfield Show there were sold twenty-four Red Polls, the largest number of any pure breed. They averaged 59*s.* 2*d.* per cwt. The Aberdeen Angus averaged 60*s.* 3*d.* for eleven animals. The average gain per day of all animals at the show was 1.74 lb. The average for the Red Polls was 1.82 lb.

One could quote a list of wearisome length of such animals. I have had myself in the past twenty years many deep-fleshed cows giving over 60 lb. and up to 80 lb. of milk of 4 per cent. butter-fat, living long, and breeding neat, beefy

bulls and steers. The bulls remain active and good-tempered for many years. I keep five or six of them of different ages up to perhaps ten years old, all tethered out close to one another, and it is the exception to see one being led with a pole.

The illustration is of Knepp Prudence Fourth. She won many prizes, including the Championship at the R.A.S.E., and First at the Dairy Show. She gave 7½ gallons of milk in the day, of over 4 per cent. butter-fat. In show condition she weighed over 12 cwt. Her wonderful quality is evident in the photograph. She was by Gressenhall Marquis, whose dam gave over nine gallons in a day, nearly 2,000 gallons in one lactation, and was champion of all breeds in the milking trials at the R.A.S.E. Show in July, 1921, and went on in such good condition as to win the Inspection Class at the Dairy Show in the following October. This was, of course, an animal of very exceptional merit, but such an animal could never appear except from a breed of which the average excellence was high. You cannot breed a Derby winner from a breed whose average speed is low. The Red Poll, owing to its ancient lineage, is very dominant when crossed with other breeds, reproducing its colour and eliminating the horns. They have been exported all over the world, and give especial satisfaction in hot climates and in districts subject to periodical droughts. There are recognised Herd Books for them in U.S.A., Canada, Australia and South Africa.

THE JERSEY

By EDITH BRADLEY

Secretary, South-Eastern Jersey Club.

AMONGST the many fine breeds of dairy cattle which roam our pastures, the Jersey holds a unique place. Practical experience of her valuable qualifications has redeemed her from that pretty and exalted position of being an ornament to the rick man's park. The rich man has disappeared for the most part, but the beautiful graceful Jersey cow is still placed amongst the commercial assets of the milk industry. It is no idle figure of speech to say that again and again the Jersey cow has saved the fortune and breaking-up of homes for many women, if not men. Five pre-eminent qualifications distinguish this breed of dairy cattle: (1) Beauty of form and responsive nature; (2) remarkable milk yield; (3) fine quality and food value of milk; (4) coming into profit at an early age; (5) relative small consumption of food in regard to production.

Beauty of Form and Responsive Nature.—There can be no contrary opinion on this point; in the varied beauty of an English landscape, the graceful form and exquisite colouring of the Jersey give harmony and delight, and in the annals of her history are many instances of her docility and her response to kind and careful treatment. She is gentle by nature, and it is a very remarkable point that this breed has been the mainstay and source of livelihood to the people of the Channel Island from which she takes her name. Moreover, for 200 years she has been bred pure in this Island, because no imported animal is allowed into Jersey except for immediate slaughter, and the native cattle are absolutely free from tuberculosis. It is now the custom at the public auction sales in England to offer only those animals which have passed the double intradermal test for tuberculosis. This is a point well worth remembering when so many evils are alleged against the unfortunate cow.

Remarkable Milk Yield.—At the beginning of the century the yield of 800 gallons of milk in a year was considered an achievement amongst Jersey breeders, but by careful feeding, based on scientific research, it was found that double that amount could be produced. A sensation was caused in the dairy world (1928) when Postmistress (belonging to Mr. Grosvenor Berry) had 2,000 gallons recorded to her credit. In the present year (1934), we have a record herd in Hampshire,

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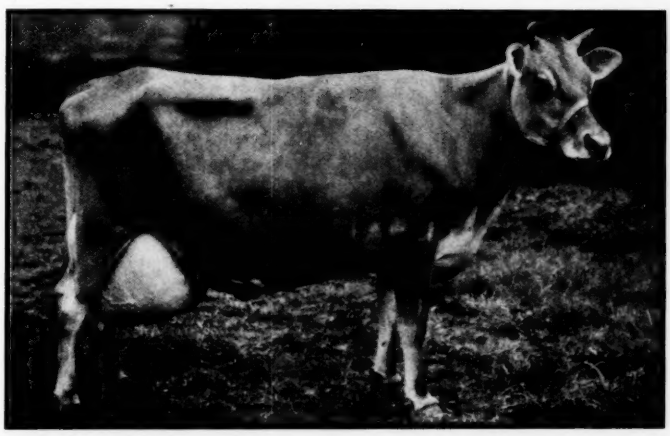
with seventeen Jerseys all giving over 1,000 gallons; and in April two further records were put up by Mr. McWilliam's Bollhayes May's Sunshine giving 86¼ lb. of milk in twenty-four hours; and by Mr. Lockwood's Stonehurst Patrician's Lily giving 85½ lb. in the same time. (On June 4th this last cow gave 86¾ lb. in twenty-four hours, and she has therefore beaten Postmistress's 81¼ lb. highest yield in one day by 5½ lb.)

Quality and Food Value of Milk.—In competition with other breeds the superiority of Jersey milk has been maintained in butter tests and milking trials, where it has been conclusively proved that, weight for weight, Jerseys are the most produc-



Mr. LOCKWOOD'S "STONEHURST PATRICIAN'S LILY"

tive and economical dairy breed; and that a ton of food fed to her will yield more in the form of butter, milk, or cheese, than can be obtained from any other breed.

The Jersey comes into profit at two to two and a-half years, and with care and correct feeding will milk on for nine, ten, twelve, or even fourteen years, reaching the maximum for milk and butter-fat production after her fifth calf, and she should continue in her prime until the ninth calf.

Obviously the feeding necessary to produce high yields in relatively small animals requires skill, understanding and careful thought. To take one point only: it is known that with every gallon of milk produced a considerable amount of mineral substances used for bone formation are carried off, therefore that deficiency must be made good by the addition of equivalent minerals in the food ration. This principle of equality equivalent must be maintained throughout if the cow is to be kept in full efficiency.

THE HEREFORD

By E. CRAIG TANNER

SHOULD you take a motor run through the Wye and Severn Valleys along the Welsh border you will see the most picturesque cattle in the country: the uniform red and white of the Hereford showing up against the green grass as no other cattle can do. These hardy cattle are kept by most farmers in the grazing and rearing districts of the West of England, and a very rent-paying proposition they are, being easy to rear and fatten quickly, often on grass alone.

ABORTION VACCINES
for CATTLE

'AMBLOSIN'

Prepared from pure cultures of numerous strains of Bang's bacillus. Contains not only intact killed bacteria but also their extractives. Employed for preventive inoculation in healthy herds and for curative inoculation of pregnant cows in infected herds up to fifth month.

Dose : First injection 10 c.c. : second injection 20 c.c. When used curatively a third injection of 20 c.c. is given.

Supplied in ampoules of 10 *c.c. and* 20 *c.c.*

LIVING CULTURES OF BANG'S B. ABORTUS

For use on non-pregnant animals in infected herds,

Dose : Two injections (10 c.c. and 20 c.c.) or one of 20 c.c.

Supplied in ampoules of 10 *c.c. and* 20 *c.c.*

'YATREN' ABORTION VACCINE

A combination of the organic iodine preparation 'Yatren' and killed cultures of Bang's B. abortus. For protective and curative use in non-pregnant and pregnant cows. Specially recommended for obstinate cases. May be injected up to seventh month of gestation.

Dose : Two or three injections of 30-50 c.c.

Supplied in bottles of 100 *c.c. and* 250 *c.c.*

BAYER PRODUCTS LIMITED

AFRICA HOUSE, KINGSWAY, LONDON, W.C.2

Telephone : Holborn 8730 (6 lines). **Telegrams : Bayaprod, Phone, London.**

I do not think there are any sounder cattle existing, being practically free from tuberculosis. I have tested my own herd for the last thirty years with only one reactor, and I think 1 per cent. is the general average. Mr. J. B. Manuel, who perhaps has tested more bulls for export than any other veterinary surgeon, once told me that ½ per cent. was his experience.

The Hereford are to be found in most cattle countries of the world, and are supreme in extreme climates. Not only do they stand the long droughts of Australia and South America better than most breeds, but also the intense and severe winters of the Rockies of U.S.A.; hence the splendid demand for export; and even in these bad times breeders have been making up to 500 guineas for their best bulls to the exporters.

South America used to be the best customer to the Hereford breeder, but latterly Australia has been taking many of the best bulls, hoping to capture a

"PERTONLUTE," FIRST AND JUNIOR CHAMPION, ROYAL SHOW, 1930.

portion of the chilled-beef trade of the London market, which they thoroughly deserve for their enterprise. Other countries that are buyers of Herefords are South Africa, New Zealand, Canada, Russia and Japan. Hereford cattle are noted for early maturity and aptitude for beef. They are unsurpassed as graziers, and will readily fatten on grass alone. The grass-fed Hereford beef is in great favour, and commands top price on the London market during the season. For winter feeding no breed gives a better return for the amount of corn consumed than the Hereford, and more Herefords can be carried to the acre both at home and abroad than any other breed. It is often stated that Hereford cattle are bad milkers, but if the heifers are served at eighteen months, before the fat predominates, many of them will milk really well and give a high percentage of butter-fat; and there are quite a few dairy herds of this breed in the country. Mr. W. J. S. White, of Zeals Farm, Wiltshire, is famed for his dairy herd of Herefords.

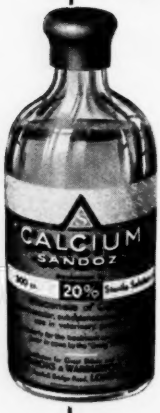
The exact origin of this breed has always been a subject of speculation and controversy, but the County of Herefordshire was noted for its cattle as far back as 1627, as mentioned by Speed in his writings. Marshall, writing in 1788, said the cattle of Herefordshire were the most valuable in the island.

Breeders have never aimed at a dual-purpose animal, but have tried to produce a beast that can turn food into beef at the least cost in the quickest possible time, and I think they have been successful.

The Original and still the Premier Calcium Preparation

CALCIUM-SANDOZ

For the Prophylaxis and Treatment of Milk Fever



The latest and improved presentation of the preparation originally selected, and abundantly confirmed, for this treatment consists of a 300 c.c. flask of a stable, sterile 20% solution from which any desired quantity may be withdrawn without in any way impairing the remainder.

CALCIUM-SANDOZ is also available in :

Ampoules of 2 c.c., 5 c.c., 10 c.c., 50 c.c., and 150 c.c. 10% sterile solution.

Powder : Cartons of 2 ozs., 4 ozs. and 16 ozs.

Powder *for oral use only* 4 ozs., 8 ozs. and 16 ozs.

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